

Hitchcock's 6352 74 Machine Tool Blue Book

FEBRUARY, 1932

TWENTY-SEVENTH YEAR


LOWER YOUR BLADE COST



MARVEL HACK SAW BLADES



FOR LONG WEAR.



MARVEL HIGH SPEED EDGE HACK SAW BLADES are GUARANTEED not to break in two in any machine—not even by accident. Marvel blades with the genuine high speed steel cutting edge electrically welded to a tough special alloy back outlast ordinary blades from six to ten times, and with faster, cleaner cuts, and fewer blade changes. Constant re-orders from users everywhere is the best proof of the wonderful results obtained with Marvel Blades. *Try them. You'll like them.*

ARMSTRONG-BLUM MFG. CO.

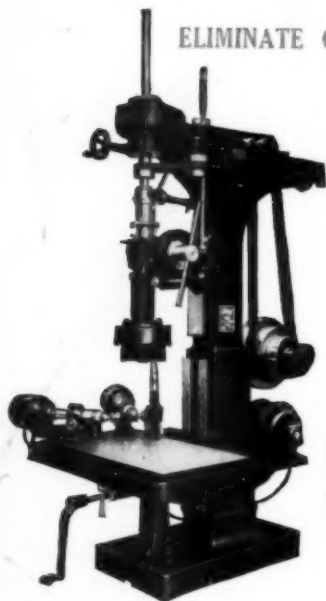
341 N. Francisco Ave., Chicago, Ill.

PUBLISHED AT 508 So. DEARBORN ST. CHICAGO

NOW IS THE TIME

TO PLAN FOR THE FUTURE

A lot of things can be done to effect economies



ELIMINATE OLD EQUIPMENT

**NEWER
AND BETTER
TOOLS
SAVE MUCH
AND
BRING YOU
PROFITS**

Let us show you
how you can get
two holes at former
cost of one.

"EVERYTHING IN GOOD DRILLING"

THE AVEY DRILLING MACHINE CO.
CINCINNATI, OHIO

Hitchcock's Machine Tool Blue Book

**Selected
Circulation**

**25,500
Monthly**

FEBRUARY, 1932

TWENTY-SEVENTH YEAR

Yes, Business is Convalescing

Since the first of the year there has been a more hopeful feeling among manufacturers of metal-working machinery, based upon inquiries, sales and a better outlook.

Automotive manufacturers, with new models and lower prices, are making strenuous bids for business, with excellent prospects of success.

The replacement needs of railroads are tremendous. With rate and wage adjustments which will permit profitable operation, they will play a big part in business revival.

Bank failures are less numerous. The National Credit Corporation is rendering assistance to hundreds of banks throughout the country.

The two billion dollar Reconstruction Finance Corporation, with Charles G. Dawes at its head, will afford relief to banks, railroads, agricultural associations and other key institutions, which will materially stimulate business of all kinds the country over.

Yes, we are on our upward way. Let us all boost, and we may be surprised at the results.

Published By

Hitchcock Publishing Co.
508 S. Dearborn St., Chicago, Ill.

Consult the Classified Finding Index for your requirements

FOOTBURT



A Single Spindle Footburt Sipp Sensitive Drill

**Made in three
sizes of single
and multiple
spindle models**

More holes with this machine

Why? Because you can change speeds in two seconds or belts in ten seconds—because the automatic idlers keep the belt pulling to capacity at all times—because the full ball bearing equipment and accurate machining gives a smooth, fast cut.

Write for No. 650 Folders

The Foote-Burt Company, Cleveland, O.

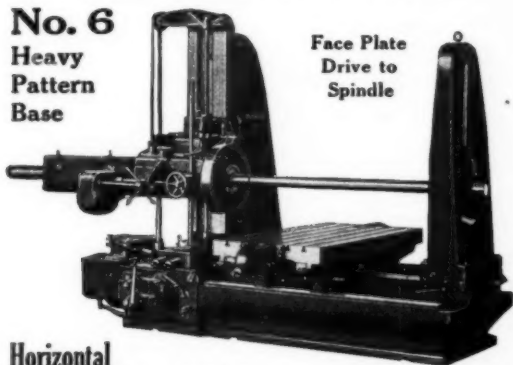
FOOTBURT

The New Improved **DEFIANCE**

No. 6

**Heavy
Pattern
Base**

**Face Plate
Drive to
Spindle**



Horizontal

Boring, Milling, Drilling and Tapping Machine

The Defiance Line of Horizontal Boring Mills embodies many special features including independent rapid traverse to head and platen in all directions, moving 84" per minute; thoroughly enclosed head; forced feed lubrication; centralized control; unit construction of head, feed and speed boxes, and many more efficient aids to production. Simplicity, great strength and ample power enable you to handle a wide range of work with profit.

Write for the descriptive folder, or for the complete Catalog of "The Defiance Line" of Cylinder Boring Machines, Heavy Service Drilling Machines, Rail Drills, Horizontal and Vertical Multiple Drilling Machines, Multiple Tapping Machines and Valve Grinding Machines.

The Defiance Machine Works
Defiance, Ohio

**Designers and Builders of Precision-Production Machine Tools and
Special Woodworking Machinery**

THEIR Confidence was Justified



WHEN 169 RAILROADS FAILED IN 1893,
JOHN H. PATTERSON SAID:

"The year has been unparalleled in the history of the United States. Great questions were to be solved, every industry was stagnant. Some closed down, some lost courage, while a few pushed ahead and worked harder than ever with confidence in the future. We did not let the hard times interfere with our work. When times got duller, we advertised the more and worked the harder."



WHEN PIG IRON DROPPED 50% IN
1907, ANDREW CARNEGIE DECLARED:

"This panic will soon run its course and pass away leaving no impediment to the return, in due season, of another period of wholesome, because needed, expansion of our resources. "We have had the greatest expansion of modern times. Reaction had to come--will prove healthful. Nothing can stay the rapid progress of the Republic. She is all right."



WHEN DEEP, DARK GLOOM RULED IN 1921
THOMAS FORTUNE RYAN SAID:

"Our merchants have been buying only what they can sell quickly for cash. The consumer has had to listen to so much pessimistic talk that he buys only what is absolutely necessary. People everywhere have been scared. They are getting over that. "Our people are the greatest consumers of food and manufactured articles in the world in normal times--and normal times are coming back."

AMERICA CAME THROUGH!

In 1893 stark ruin stalked through the land. 467 banks failed in a few months. Mills, furnaces and factories shut down everywhere. Bankruptcy was on every hand. America had twice as many unemployed per thousand population as she has today. But she put them all back to work.

In 1907 panic broke loose. The production of pig iron dropped 50% in less than a year. All but the strongest men lost heart—"We are ruined," they declared, "recovery cannot come in our time." Yet in two years prosperity had returned.

In 1921, when many honest and thoughtful people were predicting worse conditions, the country was already beginning to climb to the greatest era of prosperity it had ever experienced.

History tells how America has fought and won 19 major depressions. Good times always follow hard times, as surely as day follows night. Prosperity always comes back. It is coming back this time, too.

Above all things, let us have faith.

America Has Beaten 19 Major Depressions She will Beat this one

THE NATIONAL PUBLISHERS ASSOCIATION

"As the most nearly self-contained nation, we have within our own boundaries the elemental factors for recovery."

(From the Recommendations of the Committee on Unemployment Plans and Suggestions of the President's Organization on Unemployment Relief)

HERE IT IS!



—the "last word" in FRICTION CLUTCHES

Machine designers, owners and operators are as one in their praise of the Conway Clutch. The designer, because he knows the Conway is going to keep his product at top performance, for life. The owner, because it relieves him of clutch worry and expense. The operator, because of its ready response to his touch on the lever bar.

EASY ENGAGEMENT
INSTANT RELEASE
DRAGFREE IDLING
ABUNDANCE OF POWER

—these are the four big Conway features. Ask for Catalog P-20—it has the full details. And our new Bulletin E-8, on Conway Expansion Clutches is also ready.

THE CONWAY CLUTCH CO.

1541 Queen City Ave., :: Cincinnati, Ohio

"The Conway Disc is a splendid Clutch"

Patented U. S. A. and Canada.

Taylor & Fenn Belt Driven
No. 12 Spring Press



**UNIFORM BLOW
SPRING PRESSES**

Are made in
three sizes,
with either
single or
double action

Our No. 12 Belt Driven Spring Press, illustrated above, has a stroke of $3\frac{1}{4}$ inches. The foot treadle operates a safety clutch attached to the flywheel, which automatically stops the machine after each stroke regardless of whether the treadle is released or held down by the operator. The clutch can be adjusted for a continuous stroke if desired.

Descriptive circular gladly sent upon request

The Taylor & Fenn Co.
Hartford, Conn., U. S. A.

The Cincinnati HIGH SPEED

CUT-OFF MACHINE



Speedy Cutting—
Straight or Angle
Up to 45°

The CINCINNATI quickly and easily cuts steel alloys, brass, aluminum, copper, fibrous materials, etc., of any size or shape up to 2¼" inclusive. Uses 12" or 14" diameter abrasive wheels which operate at a peripheral speed of 16,000 S. F. M. Fully guarded—combines speed with safety.

Interesting Figures

A chart, showing the remarkably short time necessary to cut various materials, as well as the average number of cuts per wheel, will be sent upon your request. Send for it today and compare it with your own cutting figures.

Drop us a line and we'll forward a bulletin giving complete information

BUILDERS OF
Ball Bearing
Electric Drills
Screw Drivers
Nut Setters
Tappers
Valve Grinders
Tool Post Grinders
Floor Buffers
Bench and
Floor Grinders

THE CINCINNATI
ELECTRICAL TOOL CO.
2700 Madison Road, Cincinnati, O.

"A SECOND OR TWO—AND THE CUT IS THROUGH"

THE STANDARD GRINDERS



PEDESTAL GRINDERS

$\frac{1}{4}$ H. P. up to and including
10 H. P. size.

General Electric Motors.

SKF Ball Bearings.

Nickel Steel Shafts.

Also Bench Types.

Buffing and Polishing Machines — various sizes.

Also

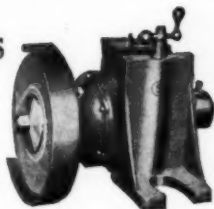
self-contained motor belt driven
overhanging spindle buffers.

ANGLE PLATE or PARALLEL GRINDERS

$\frac{1}{4}$, $\frac{1}{2}$, 1, 2, 3, 5 and $7\frac{1}{2}$ H. P.

Tool Post or Center
Grinders.

Combination
Internal and External
Grinders.



Write for complete catalog

The Standard Electrical Tool Co.

1952 West 8th St.,

Cincinnati, Ohio

Standardize on Standard Tools

Wittek Universal Die Sawing and Filing Machine

has many new and improved features



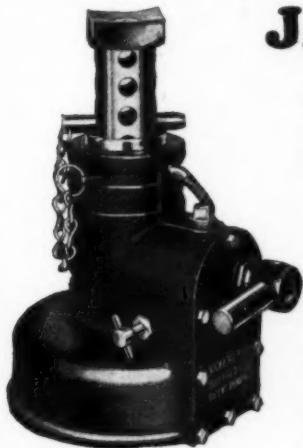
This machine has three speeds with adjustable stroke from 1¼" to 5½" Universal saw and file holders hold any size saw or file. It has roller saw guides above and under the table to guide the saw for accurate sawing. The table tilts 15 degree angle in any direction. Has detachable screw feed, and many other features.

**Made in Bench or Floor Models, with Motor
or Belt Drive. Price \$285.00 and up.**

Ask your Machinery Dealer or write us for Bulletin FH.

WITTEK MANUFACTURING CO.
Dept. H. 4307 West 24th Place, Chicago, Ill.

Vickers Hydraulic MULTI-PURPOSE JACK



Model TB-20

\$36. LIST
20 Ton Cap.

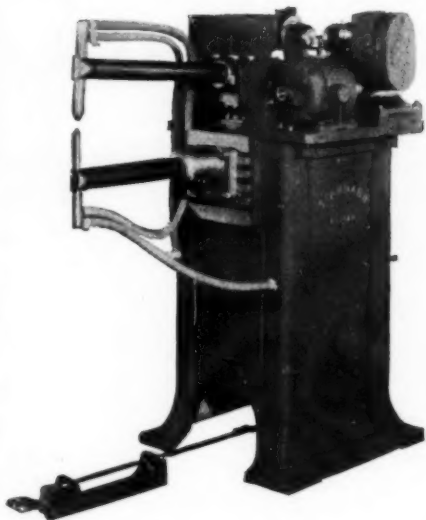
The finest industrial jack built, at a low price possible because of Vickers' *simplified* design. Only seven moving parts including valves—all totally enclosed. No leather packings, no oil, no stuffing

box on ram—does not leak nor settle under load. Micro control of release valve permits slow lowering of load—no "dropping." Speedy operation in any weather. Model TB-20 has a "low" height of 10 $\frac{3}{8}$ " , extension head adjustment to 15 $\frac{3}{8}$ " with 6 $\frac{1}{2}$ " ram travel.

Write for literature today on Vickers' complete line of patented "direct lift" hydraulic jacks, including list prices and discounts. Other models and types from 3 to 15 tons capacity. Get the facts.

VICKERS MFG. CO., M. & T. Bldg.
Buffalo, N. Y.

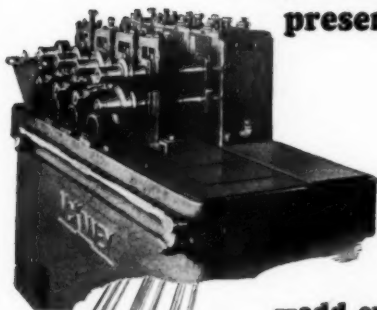
“Standard” Automatic



A fully automatic, top drive spot welder. Built in 20, 25 and 33 KVA capacities. Five speed changes from 45 to 140 strokes per minute. Positively the smoothest operating spot welder on the market. *Write for prices.*

The Lenney Machine & Manufacturing Co.
Warren, Ohio

Buy for your present needs



**—add extra units
when you need them**

The type of sections you produce or need right now may require only a small roll-forming machine with few forming rolls. Yet future work may require the facilities of a larger machine.

McKinney design makes it possible for you to provide for both without costly duplication of equipment. Due to McKinney unit-built construction, you can buy as small a machine as will meet present needs, and yet meet most future requirements simply by adding extra double-spindle units to the base of the original machine.



This optional feature, together with McKinney sliding housing design which permits roller dies to be set up either between housings or on exposed ends of spindles, give McKinney Roll-Forming Machines a range of adaptability not obtainable with any other equipment.

Write for new bulletin

The McKinney Tool & Mfg. Co.

1684 Arabella Road,

Cleveland, Ohio

NEW
"PROCUNIER"

**TAPPING
ATTACHMENT**

$\frac{1}{4}$ " Capacity



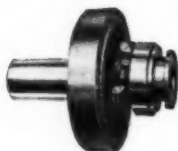
**Taps
perfect
holes
at 3000
r. p. m. !**

**Also other
styles and
sizes**

Want a free trial?

PROCUNIER SAFETY CHUCK CO.
14 S. Clinton St., Chicago, Ill.

**EDGEMONT
TYPE SF DISC CLUTCH**



FEATURES:

Hardened steel cam, rollers and pins.
One hand adjustment (no tools required).
Large liner area.
Quick release at all speeds.
No sliding of levers under heavy pressure.
Simple, fool-proof design.
Easy, quiet operation.

The Edgemont "Type SF" Clutch is especially suitable for machine application due to its correct design and efficient operation.

Blue-prints and complete information sent on request. Write now for it.

"CAREFREE SERVICE AT ANY SPEED"

The Edgemont Machine Co.
2900 Home Ave., Dayton, Ohio

Two-Spindle Vertical Attachment for the **SUPERIOR** Hand Miller



Adapted to perform two operations on the same piece, or a different operation on two different pieces.

This two-spindle vertical milling attachment is carried on the main sliding head, and the vertical spindles are mounted on Timken Roller Bearings. The spindles are provided with spring chucks and draw-in bolts so that straight shank end mills can be used.

Accuracy, Versatility Facilitate Production

These attachments are running continuously, day and night, in many plants and are performing successfully the operations on a variety of pieces. The very best of materials and workmanship insures *long life* together with *perfect alignment* and *ease of operation*.

Write Us Today for Descriptive Literature and Price

We are also Designers and Manufacturers of Special Machinery, Tools, Dies, etc., as well as of Experimental and Model Work.

Superior Machine & Engineering Co.

1920 Ferry Park,

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Detroit, Mich.

MARKING DEVICES

RUBBER STAMPS



STEEL STAMPS



BURNING BRANDS



THE SCHWERDTLE STAMP CO.
BRIDGEPORT, CONN.

"ALNOR" Pyrometers

for the
Hardening
Furnace

MODEL 223

Inexpensive, yet accurate and durable, the ALNOR Pyrometer is used by large and small shops everywhere for heat-treating work. Because of its low first cost and compact size it is also very popular for soft metal melting, galvanizing, die casting, japanning, enameling, measuring flue gas temperatures and many other purposes.



\$35
COMPLETE

Write for descriptive folder

Illinois Testing Laboratories, Inc.
150 W. Austin Ave., Chicago, Ill.

KRW "Bench Type" ARBOR PRESS



No. 37D

\$28.50

F.O.B. FACTORY
ARCADE, N. Y.

Shipping Weight
140 lbs.

*Write for special
circular, just off
the press, cover-
ing KRW Hy-
draulic Arbor
Presses, air and
oil operated.*

Every shop needs one of these presses to handle hundreds of jobs now done with vises and sledge hammers. They soon pay for themselves in time and labor saved.

The K R W "Bench Type" Arbor Press is oversize in every particular. The throat is extra deep, taking work up to 13 inches in diameter. The ram is $1\frac{1}{2} \times 1\frac{1}{2} \times 17$ inches. Largest arbor is $1\frac{1}{8}$ inches. The height is 22 inches. Can be conveniently mounted on end of work bench, as it takes up a space of only 8×20 inches.

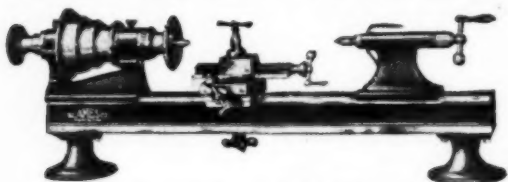
K. R. WILSON

10-16 Lock Street, Buffalo, N. Y., U. S. A.

EXPORT DEPT.
126 Liberty St., New York

WEST COAST BRANCH
647 Mateo St., Los Angeles

AMES Bench Lathes



For Turning—Drilling—Grinding—Milling—
Threading—Filing—Polishing—in the tool
room or in production.

Send for complete information

B. C. Ames Co., Waltham, Mass.

Detroit Branch: 902 Stephenson Bldg.



ATLAS ARBOR PRESSES

For all forcing operations
No. 55 for—

**Power
Speed
Versatility**

with a ram travel of 27 feet per
minute this press develops 10
tons pressure.

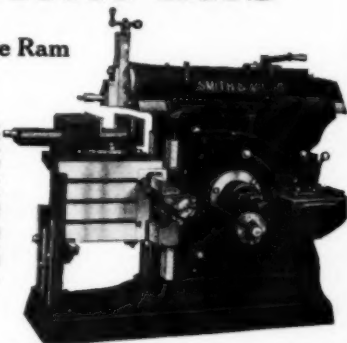
*Write for descriptive Bulletin on this
and other Atlas Presses.*

**ATLAS PRESS CO.
KALAMAZOO, MICH.**

SHAPERS

"V" Type Ram

12", 14", 16",
20", 25" Gear
Box single pul-
ley or motor
drive, also 16",
20", 25" B. G.
cone drive with
belt shifter. 32"
B. G. all geared
single pulley or
motor drive, all
sizes crank type.



The Smith & Mills Co., Cincinnati, O., U.S.A.

Improved Thompson Universal Grinder

Self-contained and motor driven, this standard Grinder combines efficient means for the rapid and accurate production of every grinding operation required in a machine shop.

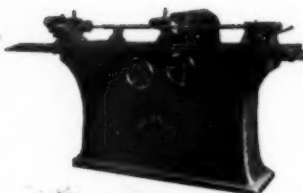
All standard machines equipped with auxiliary independent coarse cross feed for surface grinding.

Capacity 12"x36"

**The Thompson
Grinder Co.**

1534 West Main St.,
SPRINGFIELD, OHIO





**LOWER
Costs—
BETTER
Work—
If You Use
The**

COLONIAL Broach Sharpener

Broach life is often increased 50% by using the COLONIAL because it is specifically designed for grinding the teeth and hard-to-get-at undercut. You get the equivalent of a new tool with each grinding. And actual production costs are reduced by *two-thirds* with a time saving approximately the same! It will pay you well to investigate the COLONIAL Broach Sharpener.

Write Today for Details Including the Low Price

COLONIAL BROACH COMPANY
147 Jos. Campau Ave., Detroit, Mich.

USE "D. & W." DEMAGNETIZERS!



Of unique construction, they are simple, dependable

A rigid continuous "U" shaped core, made of the highest grade laminated electrical steel, is energized by two

stationary coils, thru which alternating current is passed. Construction is similar for d. c. machine, and in addition containing a small converter.



Have you any special problems in connection with the use of Magnetic Chucks? We will gladly investigate and report on same, or design a special chuck for your particular needs. *Write us today.*

J. & H. Electric Co., 200 Richmond St., Providence, R. I.

PEERLESS

METAL SAWING MACHINES

**UNIVERSAL
HIGH SPEED**

Fast, accurate production Metal Sawing Machines for machine steels, tool steels, stainless steels and high speed steels as well as all other classes of cut-off work. Made in three sizes—6"x6", 9"x9", 13"x13". Three Speeds. Belt or motor drive. Arrangements for motor, standard equipment.

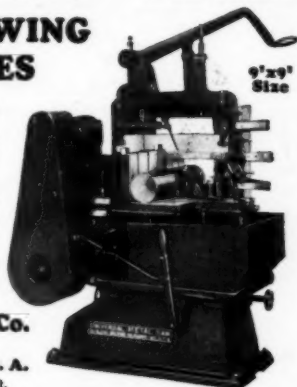
*"If it's a cut-off proposition—
It's for PEERLESS"*

Peerless Machine Co.

1619 Racine St.,

RACINE, WIS., U. S. A.

New York Office: 15 Warren St.



SPEED

SPOT WELDERS

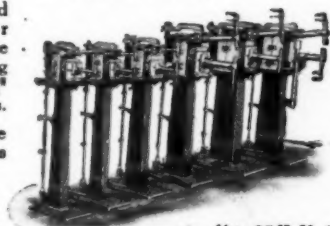
Made foot-operated and variable speed automatic motor drive, no change gears, for welding from .0005 to $\frac{5}{8}$ " combined thickness.

Welders for Fine Work Priced As Low As

\$55.00

Submit Your Problems

OVER 20,000 IN USE



$\frac{1}{2}$ to 35 K. V. A.

EISLER ELECTRIC

763 So. 13th Street,

NEWARK, N. J.

Distributor and Dealer Connections Desired

A NEW BURKE TAPPING MACHINE



**with
Exceptional
Power**

The new No. 606 Burke Tapping Machine belies its size in its remarkable power and speed. Handling $\frac{3}{8}$ " taps in cast-iron or $\frac{1}{16}$ " taps in steel, it is unusually useful. Compactly built, it is portable and can be placed in any convenient place.

*Write for
circulars
and prices.*

The Burke Machine Tool Co., 297 E. 16th St.,
Cleveland, Ohio

ARMSTRONG

TRADE MARK REG. IN U.S. PAT. OFFICE



Engineers' Wrenches

Drop-forged from special high-carbon steel, Armstrong Engineers' Wrenches help good workmen to do work. They're sturdy, accurate and well balanced; smoothly burnished, hardened and finished in black enamel with heads ground bright. Supplied singly or in sets. *Write for circular.*

ARMSTRONG BROS. TOOL CO.

"The Tool Holder People"

308 N. Francisco Ave., Chicago, Ill.

London Branch: Armstrong Bros. Tool Co. Ltd.,
35 Upper Thames St., London, E. C. 4, England



Townsend Centrifugal Multi-Blow Riveters

THE ONLY MACHINE THAT
IMITATES HAND RIVETING IN
EVERY WAY.

NUMEROUS TYPES FOR ALL
KINDS OF WORK.

Round and Flat heads, hollow and cheek rivets
from .008" to $\frac{5}{16}$ " without distortion or breaking
of fragile material. In places inaccessible by any
other method.

H. P. Townsend Mfg. Co.
Hartford, Conn.

Foreign Representatives:

G. H. Alexander Machinery Ltd., Birmingham, England
Andrews & George Co., Tokyo, Japan
Fenwick Freres, Paris, France

The "JARVIS" Bench Band Saw

For Metal Cutting Operations



The "Jarvis" Bench Band Saw cuts
metals—straight, curved or bevel. It
is motor driven, operates from a
lamp socket and is vibrationless.
Ball bearing disc wheels, worm drive.

12" size cuts up to $1\frac{1}{2}$ " cold rolled
steel. 16" size cuts up to 2" cold
steel. Also made for cutting soft
metals, Bakelite fibre, transite, wood, etc.

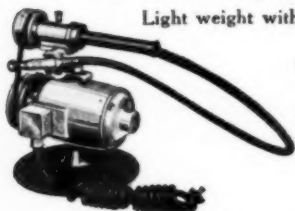
Details gladly sent upon request.

BENJ. E. JARVIS, Inc.
NEWARK, NEW JERSEY

Wells Sales Corp., Agents
96 Warren St., New York City

Mall
TRADE MARK

HEAVY DUTY—HIGH SPEED Die Sinking Machines



Light weight with ABUNDANT POWER

Use

THE MALL METHOD
for

Cleaning— Scraping—
Finishing— Sawing—
Drilling— Filing—

Speed ranges 300 to
21,000 r. p. m.

Detailed Catalog on Request

Mall Tool Company, 7740 So. Chicago Ave.,
Chicago, Illinois

ANNOUNCING “SURE CLAMP”

This New Line of Quality
Drill Fixtures Sells for

50 to 70% LESS
than any on the market

They embrace many exclusive
improvements, and carry an
UNCONDITIONAL GUARANTEE.

Write today for full details



6"x10" Capacity

\$37.50

A. H. PEARSON, 7 East Grand Avenue
DETROIT, MICHIGAN

A Few Desirable Territories Open—Write Us



Punch MORE Holes with T. H. L. PUNCHES

T. H. L. Punches will produce more than the average number of holes, for they are made of the highest grade, dependable tool steel and are hardened and tempered—*right*. Our experience of nearly 40 years in making of punches assures you satisfactory, continuous and profitable production.

A Trial Order

will convince you. We carry large stocks of regular sizes for immediate delivery—special sizes quickly made.

Write for a copy of our Catalog

T. H. Lewthwaite Machine Co.
311 East 47th St., (Est. 1890) New York City

RING WHEEL GRINDER

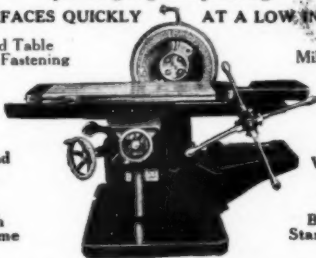
for roughing and finishing

FLAT SURFACES QUICKLY AT A LOW INVESTMENT

Unobstructed Table
for Fixture Fastening

Rigid as a
Milling Machine

Two Sizes



High Grade

Work Bound
to be True

For
Wet Grinding

Right Finish
in Right Time

Bracket for
Standard Motors

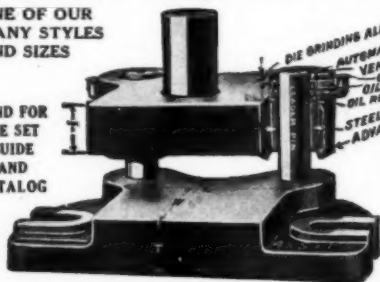
Pulley Grinder and Grinder Chuck Circulars too

THE GRAHAM MFG. CO., 70 Willard Ave.
PROVIDENCE, R. I.

Automatically Oiled Die Sets

ONE OF OUR
MANY STYLES
AND SIZES

SEND FOR
DIE SET
GUIDE
AND
CATALOG



DIE GRINDING ALLOWANCE
AUTOMATIC OILER
VENT HOLE
OIL-HOLE COVER
OILING WICK
OIL RESERVOIR
STEEL BUSHING
ADVANCE BEARING

70,000
Sizes

E. A. BAUMBACH MFG. CO.

GENERAL OFFICE AND WORKS

1810 South Kilbourn Ave., CHICAGO, ILLINOIS

Sales and Engineering Offices—Principal Cities U. S. A. and Canada

A NEW **CAD** September 1, 1930



The **CAD** U BIG BRUTE Machine Shop Clamp

Made for your big boring
mills and planers that re-
quire $\frac{7}{8}$ "—1"—1 $\frac{1}{8}$ " bolts.

CAST STEEL
Good For
10 to 15 Tons Safe Load
8"—10"—12"—16" Long

Ask for CAD Circular A-51
STANDARD SHOP EQUIPMENT CO., INC.
Set-up appliances for machine tools
8135 Tinicum Ave., Philadelphia, Pa.

Sheldon Arbor Presses



Sheldon Milling Machine
Vises.

Sheldon Drill Press and
Shaper Visas.

Sheldon 90° Angle Plates.

*Write for illustrated
price list.*

Sheldon Machine Company

Railway Exchange Bldg.



Chicago, Ill.

Bench Profiling Machine

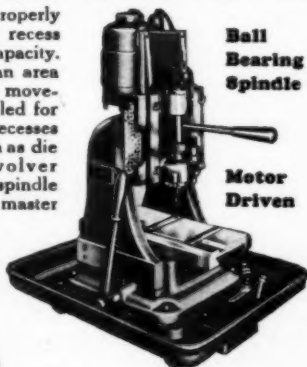
with Built-In Pump and Oil Reservoir in Base

RIGIDLY built and properly balanced for all recess work up to its capacity. Cutter spindle covers an area of $1\frac{1}{4} \times 4$ ", has vertical movement of $1\frac{1}{4}$ ". Unexcelled for producing duplicate recesses in blocks or plates such as die blanks, gun and revolver plates, etc. Cutter spindle furnished for cutting master plates.

Write for Complete Details

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CULLMAN SPROCKETS

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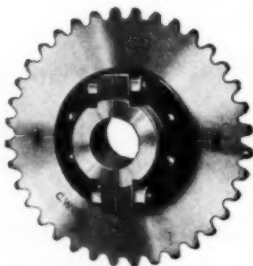
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**Outside or Inside Nibber,
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**Will Save You 90%
on Templates, Trial
Blanks, Sheet Metal
Experimental Work**

Nibbles sheet metal up to $\frac{3}{16}$ " into any shape, inside or outside. Inside nibbling depth of cut $\frac{1}{4}$ " from any outside edge. Shear flat stock up to $\frac{3}{16}$ ", cut rods from $\frac{3}{16}$ " to $\frac{1}{2}$ " dia. Cast steel—wearing parts hardened and ground. *Write for details.*



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One of the important reasons why Gusher Pumps continue to operate quietly and satisfactorily under continued use is the patented feature, **BALANCED THRUST**. This balance is accomplished by using the pumping action as a counterbalancing upward force against the natural downward thrust.

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PUMP**

THE RUTHMAN MACHINERY CO.
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This portable electric blower delivers **DRY** air, **free from oil**, at high velocity, yet low pressure. It safely, quickly, and efficiently cleans motors, generators, converters, shafting, overhead piping, etc. Reduces fire risk and danger of "shorts" and "burnouts."

Instantly convertible for suction-cleaning stocks, bins, auto interiors, furniture, overhead pipes, shafts, line shafting, etc., or for spraying insecticides, deodorants, paints, lacquers, etc.

Attach to any light socket. Any voltage. Less than 2¢ an hour to run. Ball bearings—no oiling. 4 models. Used by over 20,000 concerns. Fully **guaranteed** by 20 year old company, originators and largest manufacturers of portable electric blowers.

Try this blower 10 days. Then pay for it or return it at our expense.

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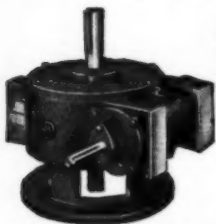
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TYPE V (TIMKEN EQUIPPED) **IMMEDIATE SHIPMENT**
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BOSTON GEARS



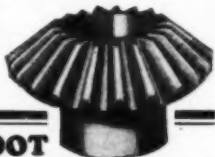
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OUR Service Department is always ready to cooperate with your engineers in solving your gear problems. With its background of nearly 25 years of experience in meeting gear problems of all kinds, this department is often able to render invaluable assistance. This service is yours without extra charge. CROFOOT Gears are moderately priced and are made in all metals, Bakelite, Formica, etc., in sizes from $\frac{1}{8}$ " to 36".

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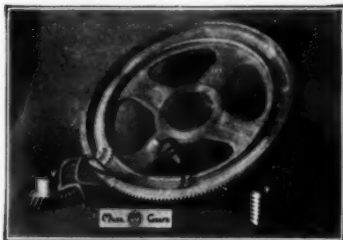
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Use one with all your straight shank tools, and you will discover a new field in tool economy.

Simply insert the shank of a drill or reamer into its sleeve, and the "Utility" works as positively and efficiently as a solid taper shank tool.

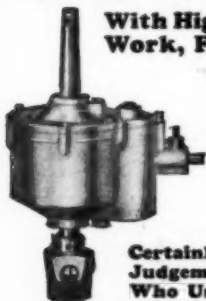
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Work, Fatigue or Broken Taps**

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High Speed—Sensitive

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**Heavy? Awkward?
Hard to Get At?**

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"CANTON" Portable Crane, Hoist and Truck

It will reach into otherwise inaccessible places, pick up any bulky, unwieldy object weighing up to 6000 lbs. with ease, and transport it from one end of the shop to the other. *One man* can operate it—no need to call 6 to 10 men from their work to risk torn ligaments. Safety Friction Load Brake can be added to new or old 'Cantons' at small extra cost.

*The several sizes are
shown in Booklet E-8*

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Grant NOISELESS SPINNING Riveter



One rivet per second.
Heads highly polished.
No hammer or tool marks.
The work is always uniform.
As tight or loose as desired.
Works in hard-to-get-at places.
It's easily operated by cheap help.
A boy or girl can manipulate it.
And—it's noiseless in operation.

Write today for Catalog, showing several styles. Also send us samples of your work for riveting; we will return them with close estimate of cost.

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.



CHAMPION Tool Holders

Save Expensive Tool Steel

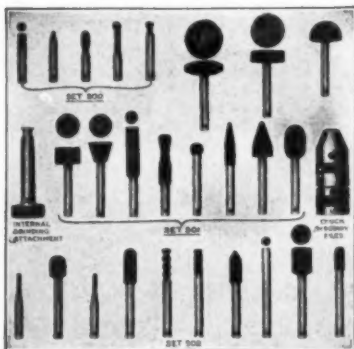
Made of drop-forged steel, thoroughly case-hardened. Absorbs heat from cutter, permits heavier cuts, lessens breakage.

The patented, protruding under-support, equipped with unbreakable "Mac-it" set-screw, increases the bearing for the cutter 40 to 70%, with a corresponding increase in cutter economy. Write for details.

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**FLEXIBLE
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We carry a very
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All shapes and
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Balancing to a "T"

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Whether it's a crank shaft or a turbine rotor you are testing the Anderson is equally sensitive. With its 6 sizes it will balance anything that revolves, up to 24,000 lbs.

It requires no leveling or adjustment, no centers; its hardened spindles are not dented by use.

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Greatest distance bet. standards	20"	30"	30"	66"	88"	20'
Capacity in lbs.	1000	2000	2000	5000	10000	24000
Approx. shipping weight	45	90	150	350	650	
Code	Bend	Bid	Bin	Bib	Ben	

Any of above can be furnished with longer shafts

Anderson Bros. Mfg. Co.

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Abolish Expensive Hand Finishing

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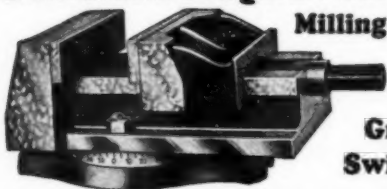


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Milling Machine

Vise

with

Graduated

Swivel Base

In Ordering this Vise give size of slot in table

No. 1— 6" jaws, 1½" deep, opens 5" - - \$38.00

No. 2—10" jaws, 1½" deep, opens 8½" - - \$2.00

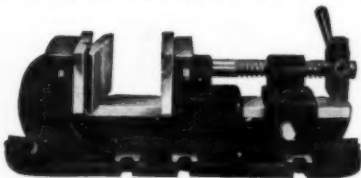
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GEM

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Press

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GROBET FILE CORP. of AMERICA
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**Change Cutting
Tools While
Machine is
in Opera-
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YES, it's possible with the new WILDER Quick Change feature. To remove or install the cutting tool all you do is lift up the knurled chuck. This releases the lock driving plunger allowing the cutting tool to drop out or be easily installed. Use a WILDER and note the increase in output per grind.

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Expanding Mandrels



THEY are not a new tool. If you order a set or a single mandrel you will know you are getting a practical and efficient article that has coped with all sorts of jobs where mandrels have been required, in all kinds and classes of machine shops, during the past 30 years.

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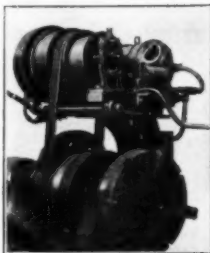
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INDUSTRIAL concerns which have been using this handy device report power savings running from 20 to 70%. And in addition, have discovered that the efficiency of their entire plant is often increased from 10 to 50%.

H & Z Individual Motor Drive Units do away with overhead shafting, belting, etc., saving a fifth of your floor space and promoting a greater degree of safety for employees. Silent in operation. Adaptable to practically any machine.

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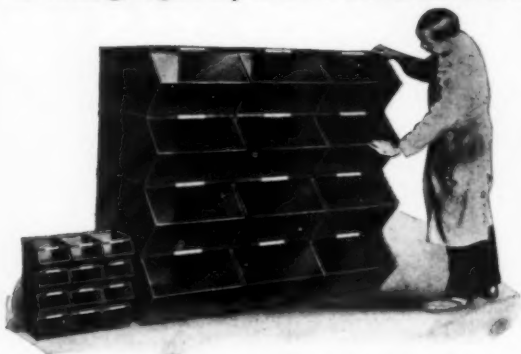


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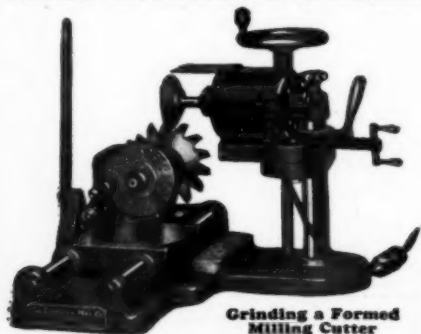
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Standard Equipment

Includes centers, sleeve sliding attachment and a universal attachment which has with its swivel base and head a universal link, making it adjustable to any angle or position with a capacity up to 18" in diameter, indexing with either a finger indexer or dividing head which is furnished. Motor is adjustable to any horizontal position.



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42

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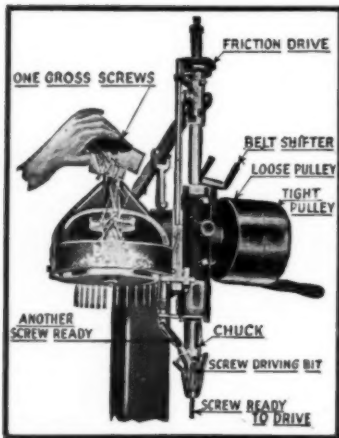
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Automatic
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In 1932!



It will pay you to specify ELCO SCREWS if you desire accuracy and uniform high quality at moderate prices.



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Sheldon Machine Co., Railway Exchange Bldg., Chicago, Ill.
Wilson, K. R., Buffalo, N. Y.

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Jarvis, Inc., Benj. E., Newark, N. J.
Porter Cable Machine Co., Syracuse, N. Y.

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Excelsior Tool & Mch. Co., E. St. Louis, Ill.
Lewthwaite Mch. Co., T.H. 311 E. 47th., N. Y.

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New York, N. Y.

Filing Machines

Wardwell Mfg. Co., Cleveland, O.

Flexible Shaft Machinery

Mall Tool Co., 7720 S. Chicago Ave., Chicago

Furniture, Machine Shop

Western Tool & Mfg. Co., Springfield, O.

Gages, Dial

Ames Co., B. C., Waltham, Mass.
Standard Gage Co., Poughkeepsie, N. Y.

Gages, Pin, Plug, Ring and Snap

American Tool Works, Inc., Hartford, Conn.

Gages, Spline

Colonial Broach Co., Inc., Detroit, Mich.

Gear Cutters

Chicago Gear Works, 769-773 W. Jackson
Bldg., Chicago

Gears

Boston Gear Works Sales Company, Norfolk
Downs, Mass.
Chicago Gear Works, 769-773 W. Jackson
Bldg., Chicago
Crofoot Gear Corp., C. E., So. Easton, Mass.
Massachusetts Gear & T. Co., Woburn, Mass.

Gears, Herringbone

Crofoot Gear Corp., C. E., So. Easton, Mass.

Gears, Rawhide, Bakelite, Fabrol

Chicago Gear Works, 769-773 W. Jackson
Bldg., Chicago
Crofoot Gear Corp., C. E., So. Easton, Mass.

Grinding Machines, Angle Plate

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.

Grinding Machines, Belt

Cincinnati Electrical Tool Co., Cincinnati, O.
Porter-Cable Machine Co., Syracuse, N. Y.
Standard Electrical Tool Co., Cincinnati, O.
Wells Sales Corp., 96 Warren St., New York

Grinding Machines, Bench

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.

Grinding Mchs., Combination Buffer

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.

Grinding Machines, Cutter, Router and Tool

LeBlond Mch. Tool Co., B. K., Cincinnati, O.
National Machine Tool Co., Racine, Wis.
Standard Electrical Tool Co., Cincinnati, O.
Surfacer Mfg. Co., 2456 Irving Park Blvd.,
Chicago, Ill.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Cylindrical

Thompson Grinder Co., Springfield, Ohio

Classified Finding Index

Grinding Machines, Die

Standard Electrical Tool Co., Cincinnati, O.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Snagging

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.

Grinding Machines, Disc

Porter-Cable Machine Co., Syracuse, N. Y.
Standard Electrical Tool Co., Cincinnati, O.

Grinding Machines, Surface

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Drill

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.

Grinding Machines, Tap

Standard Electrical Tool Co., Cincinnati, O.

Grinding Machines, External

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.

Grinding Machines, Tool

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
Barfacer Mfg. Co., 2466 Irving Park Blvd.,
Chicago, Ill.
Taylor & Fenn Co., Hartford, Conn.

Grinding Machines, Face

Taylor & Fenn Co., Hartford, Conn.

Grinding Machines, Tool Post

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.

Grinding Machines, Floor

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.

Grinding Machines, Universal

Barfacer Mfg. Co., 2466 Irving Park Blvd.,
Chicago, Ill.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Internal

Mall Tool Co., 8389 S. Chicago Ave., Chgo.
National Machine Tool Co., Racine, Wis.
Standard Electrical Tool Co., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Vertical Spindle

Standard Electrical Tool Co., Cincinnati, O.

Grinding Machines, Center Electric

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.

Hack Saw Blades

Armstrong-Blum Mfg. Co., 841 N. Francisco
Ave., Chicago
Peelless Machine Co., Racine, Wis.

Hack Saw Machines

Armstrong-Blum Mfg. Co., 841 N. Francisco
Ave., Chicago
Peelless Machine Co., Racine, Wis.

Grinding Machines, Lathe Electric

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.

Hoists, Portable

Canton Foundry & Machine Co., Canton, Ohio

Grinding Machines, Portable Electric

Cincinnati Electrical Tool Co., Cincinnati, O.
Mall Tool Co., 7730 S. Chicago Ave., Chgo.
National Machine Tool Co., Racine, Wis.
Porter-Cable Machine Co., Syracuse, N. Y.
Standard Electrical Tool Co., Cincinnati, O.
Strand Co., N. A., 6091 N. Lincoln St., Chgo

Hollow Mills

Wilder Tool Co., Greenfield, Mass.

Classified Finding Index

Individual Motor Drives

Hertler & Zook Co., Belleville, Pa.

Jacks, Hydraulic

Vickers Manufacturing Co., Buffalo, N. Y.

Jigs and Fixtures

American Tool Works, Inc., Hartford, Conn.
Elco Tool & Screw Corp., Rockford, Ill.

Lag Screws

Elco Tool & Screw Corp., Rockford,

Lathe Drives

Collman Wheel Co., 1869 Altgeld St., Ohio.
Hertler & Zook Co., Belleville, Pa.

Lathe Grinders

Standard Electrical Tool Co., Cincinnati, O.

Lathes, Automatic

Townsend Mfg. Co., H. P., Hartford, Conn.

Lathes, Bench

Ames Co., B. C., Waltham, Mass.

Lathes, Engine

LeBlond Mch. Tool Co., B. K., Cincinnati, O.
Porter-Cable Machine Co., Syracuse, N. Y.

Lathes, Extension Bed Gap

LeBlond Mch. Tool Co., B. K., Cincinnati, O.

Lathes, Gap

LeBlond Mch. Tool Co., B. K., Cincinnati, O.

Lathes, Manufacturing

LeBlond Mch. Tool Co., B. K., Cincinnati, O.

Lathes, Polishing and Buffing

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.

Lathes, Precision

LeBlond Mch. Tool Co., B. K., Cincinnati, O.
Wade Tool Co., Waltham, Mass.

Lathes, Short Bed

Porter-Cable Machine Co., Syracuse, N. Y.

Lathes, Tool Room

LeBlond Mch. Tool Co., B. K., Cincinnati, O.

Mandrels, Expanding

Nicholson & Co., W. H., Wilkesbarre, Pa.
Western Tool & Mfg. Co., Springfield, O.

Mandrels, Solid

Nicholson & Co., W. H., Wilkesbarre, Pa.

Machine Screws

Elco Tool & Screw Corp., Rockford, Ill.

Milling Attachments

Burke Machine Tool Co., Conneaut, Ohio.
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., B. K., Cincinnati, O.
Porter-Cable Machine Co., Syracuse, N. Y.
Taylor & Fenn Co., Hartford, Conn.

Milling Machines, Bench

Ames Co., B. C., Waltham, Mass.
Burke Machine Tool Co., Conneaut, Ohio

Milling Machines, Hand

Burke Machine Tool Co., Conneaut, Ohio.
Superior Machine & Eng. Co., Detroit, Mich.

Milling Machines, Manufacturing

Kearney & Trecker Corp., Milwaukee, Wis.

Milling Machines, Plain

Burke Machine Tool Co., Conneaut, Ohio.
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., B. K., Cincinnati, O.

Milling Machines, Spline

Taylor & Fenn Co., Hartford, Conn.

Milling Machines, Universal

Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., B. K., Cincinnati, O.

Milling Machines, Vertical

Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., B. K., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.

Name Plates, Etched and Stamped

Schwerdtle Stamp Co., Bridgeport, Conn.

Nibbling Machine

National Machine Tool Co., Racine, Wis.

Classified Finding Index

Nut Setters, Electric

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.

Nuts, Machine Screw

Eico Tool & Screw Corp., Rockford, Ill.

Pins, Leader And Dowel

Baumbach Mfg. Co., E. A., 1812 So. Kellbourne Ave., Chicago

Pipe Plugs, Square Head and Slotted

Eico Tool & Screw Corp., Rockford, Ill.

Polishing and Buffing Machines

Cincinnati Electrical Tool Co., Cincinnati, O.
Excelsior Tool & Mch. Co., E. St. Louis, Ill.
Mail Tool Co., 7730 S. Chicago Ave., Chicago
Standard Electrical Tool Co., Cincinnati, O.

Presses, Arbor

Atlas Press Co., Kalamazoo, Mich.
Nicholson & Co., W. H., Wilkesbarre, Pa.
Sheldon Machine Co., Railway Exchange Bldg., Chicago, Ill.
Wilson, H. K., Buffalo, N. Y.

Presses, Foot

Taylor & Penn Co., Hartford, Conn.

Presses, Punch

Lewthwaite Mch. Co., T. H., 311 E. 47th., N. Y.

Pulley Machinery

Avery Drilling Machine Co., Cincinnati

Profiling Machines

Wade Tool Co., Waltham, Mass.

Pulleys, Iron, Solid and Split

Chicago Gear Works, 700 W. Jackson Blvd., Chicago, Ill.
Conway Clutch Co., Cincinnati, O.

Pumps, Lubricant

Ruthman Machinery Co., Cincinnati, O.

Punch Press Feeds

Wittak Mfg. Co., 4309 W. 24th Place, Chgo.

Punch, Shear and Bender, Hand

Armstrong-Hum Mfg. Co., 341 N. Francisco Ave., Chicago

Punches, Hand

Armstrong-Hum Mfg. Co., 341 N. Francisco Ave., Chicago
Lewthwaite Mch. Co., T. H., 311 E. 47th., New York
Whitney Metal Tool Co., Rockford, Ill.

Punches and Dies

Lewthwaite Mch. Co., T. H., 311 E. 47th., N. Y.

Punches and Shears

Excelsior Tool & Mch. Co., E. St. Louis, Ill.

Pyrometers

Illinois Testing Laboratories, Inc., 150 W. Austin Ave., Chicago

Reamer Holders

Nicholson & Co., W. H., Wilkesbarre, Pa.

Reamers, Adjustable

Cleveland Twist Drill Co., Cleveland, Ohio.
Schellenbach Hunt Tool Co., Cincinnati, O.

Reamers, Portable Electric

Standard Electrical Tool Co., Cincinnati, O.

Riveters, Multiple Spindle

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Riveters, Pneumatic

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Riveting Machines

Grant Mfg. & Mch. Co., Bridgeport, Conn.
Townsend Mfg. Co., H. F., Hartford, Conn.

Red Cutters

Armstrong-Hum Mfg. Co., 341 N. Francisco Ave., Chicago
Lewthwaite Mch. Co., T. H., 311 E. 47th., N. Y.

Roll Forming Machines

McKinney Tool & Mfg. Co., Cleveland, Ohio

Classified Finding Index

Saw Sharpening Machines

Wardwell Mfg. Co., Cleveland, O.

Saws, Electric Hand

Porter-Cable Machine Co., Syracuse, N. Y.

Scraping Machines, Hand & Pneumatic

Anderson Brothers Mfg. Co., Rockford, Ill.

Screw Drivers, Electric

Cincinnati Electrical Tool Co., Cincinnati, O.

Standard Electrical Tool Co., Cincinnati, O.

Screw Driving Machines, Automatic

Reynolds Machine Co., Mansfield, Ohio

Screw Machines, Automatic

Townsend Mfg. Co., H. P., Hartford, Conn.

Screws, Cap, Drive, Lag, Mch. & Wood

Elice Tool & Screw Corp., Rockford, Ill.

Set-Up Appliances

Standard Shop Equip. Co., Philadelphia, Pa.

Shafts, Flexible

Mall Tool Co., 7730 S. Chicago Ave., Chgo.

Strand Co., N. A., 5001 N. Lincoln St., Chgo.

Shaping Machines

Osborne & Sexton Machy. Co., Columbus, O.

Smith & Mills Co., Cincinnati

Shears, Alligator

Canton Foundry & Machine Co., Canton, O.

Shears, Hand

Armstrong-Bloom Mfg. Co. 341 N. Francisco

Av., Chicago

Lowthwaite Machine Co., T. H., 311 E. 47th

St., New York

Whitney Metal Tool Co., Rockford, Ill.

Shears, Slitting

National Machine Tool Co., Racine, Wis.

Special Tools and Machinery

American Tool Works, Inc., Hartford, Conn.

Super or Machine & Eng. Co., Detroit, Mich.

Wade Tool Co., Waltham, Mass.

Speed Reducers, Worm, Spur and Herringbone

Boston Gear Works Sales Co., Norfolk

Dorset, Mass.

Chicago Gear Works, 709-773 W. Jackson

Bldg., Chicago

Cullman Wheel Co., 1359 Altgeld St., Chgo.

Spot Welding Machines, Speed.

Eisler Electric Corporation, Newark, N. J.

Sprockets

Chicago Gear Works, 709-773 W. Jackson

Bldg., Chicago

Cullman Wheel Co., 1359 Altgeld St., Chgo.

Massachusetts Gear & T. Co., Woburn, Mass.

Stamps, Steel and Rubber

Schwerdtle Stamp Co., Bridgeport, Conn.

Stencils, Brass and Oil Board

Schwerdtle Stamp Co., Bridgeport, Conn.

Straightening Machines

Whitney Metal Tool Co., Rockford, Ill.

Stud Setters

Procurer Safety Chuck Co., 14 S. Clinton

St., Chicago

Tap Extractors

Walton Co., Hartford, Conn.

Tap Holders

Procurer Safety Chuck Co., 14 S. Clinton

St., Chicago

Tapping Machines and Attachments

Avery Drilling Machine Co., Cincinnati

Burke Machine Tool Co., Cincinnati, Ohio

Cincinnati Electrical Tool Co., Cincinnati, O.

Etten Tool Co., Inc., 594 Johnson Ave.,

Brooklyn, N. Y.

Leland Gifford Co., Worcester, Mass.

Procurer Safety Chuck Co., 14 S. Clinton

St., Chicago

Whitney Metal Tool Co., Rockford, Ill.

Threading Machines, Automatic, Stud

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Threading Tools

Armstrong Bros. Tool Co., 308 N. Francisco

Av., Chicago

Tool Holders

Armstrong Bros. Tool Co., 308 N. Francisco

Av., Chicago

Western Tool & Mfg. Co., Springfield, O.

Wildner Tool Co., Greenfield, Mass.

Classified Finding Index

Tools, Boring

Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago

Tools, Lathes and Planers

Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago

Tools, Machinists'

Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago

Tube Flanging Machines

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Turntables

Canton Foundry & Machine Co., Canton, O.

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American Tool Works, Inc., Hartford, Conn.
Boston Gear Works Sales Company, Norfolk
Downs, Mass.
Chicago Gear Works, 700 W. Jackson Blvd.,
Chicago, Ill.

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Bennett Machinery Co., 30 Church St.,
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Bernstein & Co., Geo. M., 221 N. Elizabeth
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Blaser Mfg. & Mch. Co., J., Springfield, Ill.
Brandt, W. E., Pittsburgh, Pa.
Brotherhood & Son, Percy M., 25 Church
St., New York, N. Y.
Brown Machinery Co., St. Louis, Mo.
Brownell Machinery Co., Providence, R. I.
Cincinnati Mch. & Supply Co., Cincinnati, O.
Delta Equipment Co., Philadelphia, Pa.
Donahue Steel Products Co., 74th and
Ashland Ave., Chicago
Easterly Machinery Co., Cincinnati, O.
Eosley Machinery Co., E. L., 551 Washington
Bldg., Chicago
Gockel, Arthur P., Cleveland, Ohio
Hill, Clarke & Co., 649 W. Washington
Bldg., Chicago
Hyman & Sons, Joseph, Philadelphia, Pa.
Interstate Mch. Co., 130 S. Clinton, Chgo.
Iroquois Machinery Co., Buffalo, N. Y.
Johnson & Sons Machinery Co., Wm. G.,
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Jones Machine Tool Co., Cincinnati, Ohio
Lake Machinery Co., 1140 W. Lake Street,
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Long Machinery Corporation, Boston, Mass.
McDonald Machinery Co., St. Louis
Marr-Galbreath Mch. Co., Pittsburgh, Pa.
Mid-West Machine Tool & Supply Company,
Davenport, Iowa
Miles Machinery Co., Saginaw, W. S., Mich.
Moray and Co., Inc., 505 Groome St., N. Y.
Nelson Machinery Co., Green Bay, Wis.
Norton-Broadway Mch. Co., Cincinnati, O.
O'Brien Machinery Co., Philadelphia
Osborne & Sexton Mch. Co., Columbus, O.
Randle Machinery Co., Cincinnati, O.
Reeve-Fritts Co., 558 W. Washington, Chgo.
Reliance Machinery Sales Co., Pittsburgh,
Pa.
Russell Machine Co., Pittsburgh, Pa.

Used and Rebuilt Machinery—Cont.

Scott-Bansbach Mch. Co., 4607 W. 20th St.,
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Segal Machinery Co., 808 W. Lake Street,
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Seyfert's Sons, Inc., L. F., Philadelphia, Pa.
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Strafer Machinery Co., Jersey City, N. J.
Surplus Material & Mch. Co., Detroit, Mich.
Taylor-Hall Welding Corp., Worcester, Mass.
United Mch. & Supply Co., St. Louis
Wachs-Gregg & Co., 117 N. Jefferson St.,
Chicago
Wertman Mch. Co., M. A., Cleveland, O.
West Penn Machinery Co., Pittsburgh, Pa.
White Mch. Co., A. D., 108 N. Jefferson
St., Chicago
Wigglesworth Mch. Co., Cambridge, Mass.

Vises, Drilling Machine

Armstrong-Bum Mfg. Co., 341 N. Francisco
Av., Chicago
Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago
Graham Manufacturing Co., Providence, R. I.
Martin Tool & Die Works, J. E., Springfield, O.
Plunket Mch. Co., J. E., 215 N. Ada, Chgo.
Sheldon Machine Co., Railway Exchange
Building, Chicago, Ill.

Vises, Machinists'

Plunket Mch. Co., J. E., 215 N. Ada, Chgo.
Western Tool & Mfg. Co., Springfield, O.

Vises, Milling Machine

Graham Manufacturing Co., Providence, R. I.
Plunket Mch. Co., J. E., 215 N. Ada, Chgo.
Sheldon Machine Co., Railway Exchange
Building, Chicago, Ill.

Vises, Shaper

Graham Manufacturing Co., Providence, R. I.
Plunket Mch. Co., J. E., 215 N. Ada, Chgo.
Sheldon Machine Co., Railway Exchange
Building, Chicago, Ill.

Welding Machines, Butt and Seam

Lenney Machine & Mfg. Co., Warren, Ohio

Welding Machines, Electric Spot

Eisler Electric Corporation, Newark, N. J.
Lenney Machine & Mfg. Co., Warren, Ohio

Welding Machines, Resistance

Eisler Electric Corporation, Newark, N. J.

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Elco Tool & Screw Corp., Rockford, Ill.

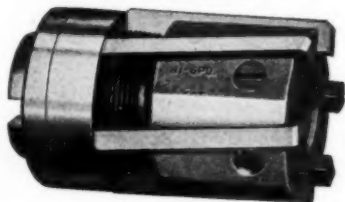
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"X-L" Adjustable Inserted Spiral Blade Shell and Machine Reamer



Reamers made with Left Hand Angle Cutting Blades do not dig in, and all chatter is eliminated. This means free, clean cutting, smooth holes, and increased production. The range of expansion is from .100" in the smaller sizes to .150" in the larger sizes. Made with High Speed Steel Blades.

This is a real production reamer. The left hand helical flutes cut fast and clean. Made only in high speed steel. Made with straight and tapered shanks.

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Write directly to those offering the machines for sale, for prices and full descriptions. If what you seek is not advertised, use the blank enclosed to make known your wants in either new or used machinery, and the publisher will pass them along to the advertisers.

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Screw machine, W. & S. No. 4.
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Bargains!

Radial drill, American 5' triple purpose, plain, arr. for motor drive....	\$1650 00
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Both warranted in good running order.

A partial list of our stock—ask for catalog.

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Blower, No. 2 Champion ½ motor
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Bolt cutter, 1" Wells Bros., m. d.
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Boring mill, 30" King; and Bullard.
Boring mill, 14" Betts, 2 hds., m. d.
Bor. mill, horiz. 23" Clev., g. b. s.p.d.
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Brake, 8" x 12 ga. power, Chicago.
Brake, pan, 60" x 14 ga. Chgo. hand.
Brake, 52" x 18 ga. P. S. & W. foot.
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Broaching mch. No. 4 Oil Gear, m. d.
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Chuck, Walker magnetic, 6" diam.
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Drills, multiple 10 and 20 spindle.
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Drill, radial, 3½" C-B., g. b. for m. d.
Drill, sensitive radial, 3½" Amer. t. a.
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Forging mche., 3½" Ajax, steel bed.
Forging mche., 3" Acme steel bed.
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Gear hobber 12" S-S "TRO".
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Grinder, No. 1 LaSalle surface.
Grinder, 18-D. Rowbottom, o. h. b. b.
Grinder, No. 1 Norton tool & cutter.
Grinder, d. e., 1 h. p. 3/60/220 v.
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Grinder, disc, 30" Bealy No. 17.
Groover, 39" Niagara, hand.
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Hack saw, 12" x 12" Racine.
Hack saw, Peerless, 6" univ. shaping
Hammer, 50 lb. Little Giant.
Ham., 400 lb. No. 10 Beaud., pwr. b. d.
Hammer, 800 lb. Erie stm. forg., s. f.
Hammer, 1000 lb. Chbg., steam drop.
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Lathe, 12" x 8" Reed-Prentice m. d.
Lathe, 14" x 8" W.-B., q. c. g.
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Lathe, 18" x 8" L. & S. sel. hd. m. d. t. a.
Lathe, 21" x 8" LeBlond, q. c. g.
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Lathe, 16" x 11" Lehman, q. c. g., t. a.
Lathe, 32" x 16" Pgh., q. c. g., chuck.
Lathe, 32" x 20" geared head, m. d.
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Miller, plain No. 3 B. & S.
Miller, No. 3 LeBlond, plain.
Miller, universal No. 4 B. & S.
Miller, vert., Becker, Nos. 3 & 5-B.
Miller, auto. No. 2-M P. & J., s. p. d.
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Motors, ½, 2, 5, 7½ h. p. 3/60/220 v.
Motor, 5 h. p. 500 v. d. c., 1500 rev.
Motor, 10 h. p. a. c., 3/60/220/1740.
Motor, 20 h. p. 220 v. d. c., 350/1050 rev.
Motor, 25 h. p. slip rg., 3/60/220/1160.
Planer, 24" x 24" x 6" Gray, 1-head.
Planer, 30" x 10" W. & P., 2-heads.
Press, 76-D Pexto, d. c., 10,000 lbs.
Press, hyd. 50-ton, Watson-Stullman
Press, No. 14 Toledo horn.
Press, F-162 Ferracute, foot power.
Presses, No. 3 Bliss, punch type.
Presses, o. b. i., No. 1 Toledo.
Press, No. 19, Bliss o. b. i.
Press, o. b. i. No. 1 Sidney, 1000 lbs.
Press, o. b. i. No. 3 Niagara, 1½" str.
Presses, foot, No. 87 Bliss, pendulum.
Press, No. 6 Perkins, s. s., 4000 lbs.
Presses, No. 67 Niagara, screw.
Punches, s. e. 36", 48", 60", 72" thts.
Punch, s. e., Badger, 7" thrt., ½" x ½".
Punch, No. 13 Niagara hand power.
Punch, Rapid, 30" tht., 1" x ½", m. d.
Punch & shear, d. e. 16" thts: 1½" x 1"
with angle & bars shear blades, m. d.
Punch & stake riveter, No. 123-C.
Toledo boilermakers.
Reduction gears, various sizes.
Riveter, Grant No. 101, 5/16" cap.
Riveters, 1-AA, 3-A, 5½ B, hi. speed.
Rolls, 30" x 14", 31½" x 3".
Rolls, hand, 31" x 2" P. S. & W.
Screw machine, No. 00 G. B. & S.
Screw mch., 10" P. & W., wire feed.
Shaper, 7" Rhodes, vert. ram, m. d.
Shaper, 16" Cin., b. g., crank.
Shaper, 24" G. & E., gear box, s. p. d.
Shaper, 25" S. & M., b. g., crk., A-1.
Shear, 42" x ½" Niagara, 18" gap.
Shears, ½" & ¾" Lennox, throatless.
Shear, foot, 30" x 20 gauge.
Shear, foot, 42" Niagara 16 ga., h. d.
Shear, plate, 154" x ½", for m. d.
Shear, alligator, No. 5 Canton, m. d.
Shear, alligator, 30" blade, 24".
Shear, alligator, 12" blade, 14".

USED AND REBUILT MACHINERY

Marr-Galbreath Machinery Co.—Continued

Shear, alligator, No. 2 Badger, 2"	Shear, 10' x16 ga. Ohl power.
Shear, rotary, 12" thrt., cap. 10 ga.	Slotter, 15" Dill, for motor drive.
Shear, rotary, 16 ga., Yoder, 24" thr.	Tappers, No. 2 Garvin, vertical.
Shear, squaring, 8' x14 ga. power.	Thread, mch., 4" Geometric.
Shear, squaring, 60" x14 ga. Canton.	Turret lathe, 26" x74" h.s., Libby.
Shear, squaring, 30" x18 ga., F. & P.	

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Fifty dollars buys a brand new ten-thousandth 33 block set, .00001" accuracy.
Rectangular shape interchangeable with Johansson blocks. Blanks seasoned over 12 years. A rare opportunity. Only 50 sets available. Order now. Satisfaction or money back guarantee.

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Drill press, 12" 2-spd. Leland p. f.	Miller, No. 3 Cincinnati plain.
Drill press, 14" 2-sp Leland p. f. t. a.	Pinion cutter, No. 1 Sloan & Chace.
Gear hobber, No. 1 Adams.	Planer, 24x24x6 American.
Lathe, 18x6 Ryerson q. c. g.	Wood planer, 12" Porter.

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Automatics, Nos. 0 & 00 B. & S.	Hobbers, Nos. 3, 12-B & C.
Drill, 1SS Garvin duplex.	Lathe, No. 9 LeBlond multi-cut.
Grinder, 10" x36" Norton.	Millers, Nos. 1 & 2 Brown & Sharpe.
Grinder, No. 10 B. & S. ext.	Radials, 3' Cincinnati Bickford.
Grinder, No. 22 Heald rotary surf.	Turret lathe, No. 6 Warner & S.

Partial list; send us your inquiries.

FOR SALE BY

Interstate Machinery Co., 130-2 So. Clinton St., Chicago, Ill.	
Bending rolls, 6' 5/16"—10' 18 ga.	Planers, Pond 72"x60"x8'; Niles-
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Circle shears, Nia. 48" 16 ga., 60" 10 ga.	Presses, Nos. 1 to 6 o. b. i.
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Millers, Nos. 2 B. & S., Ohio, Cin.	14 ga., 10' 18 ga.

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Boring mill, 30" Bullard.
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Bending rolls, Pexto; capacity 72" of 14 gauge.....	\$ 300.
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Toledo 8B, capacity 1 1/2".

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Thomson 2-C, capacity 1 1/2".

Thomson 2-A automatic, capacity 1 1/2".

Federal 4-A, capacity 1 1/2".

Thomson 7-A automatic, cap. 1 1/2".

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Lathe, Cincinnati 16"x8" q. c. g., fine condition, very low price.
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Bolt cutter, 1 1/2" Landis, dbl. head.
Bolt cutter, 1" Landis, 3hds., m. d.
Boring mill, 60" Pond, b. d.
Boring mill, 72" Colburn, 2hds. m. d.
Boring mill, 10'-16" Betts, 2hds. m. d.
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Brake, 6' hand, 16 gauge.
Brake, 8' D. & K. 10 ga. box & pan.
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Drill, No. 3 Defiance, No. 5 M.T. m. d.
Drill, radial, 2 1/2" Fosdick, t. a., b. d.
Drill, radial, 4" Prentice, t. a., b. d.
Drill, radial, 5" Dreses, motor on arm.
Drill, radial, 6" Dreses, s. p. d.
Flanger, McCabe, 1/2" capacity, dies.
Gear cutter, Wade, 1 1/2".
Gear cutters, 11", 24" & 36" Gleason.
Gear cutter, spur, 30" x 10" Newark.
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Gear planer, 20-ft. Gleason, m. d.
Gear tester, 18" Gleason, bevel.
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Grinder, internal, No. 70 Heald.
Grinder, surface, No. 16 Blanchard.
Grinder, surface, 14" Arter.
Grinder, surface, No. 2 Reid, b. d.
Grinder, tool & cut., No. 2 Walker.
Hammer, Blacker, power, 35-lbs.
Hammer, 30-lb. Bradley, cush. helve.
Hammer, 200-lb. Bradley, cush. helve.
Hammer, 300-lb. Bradley, compact.
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Lathe, 30"x8" Hendey, tie bar, t. a.
Lathe, 24"x16" Bridgeford, g.hd.m.d.
Lathe, 30"x16" Lehman, g. hd. m. d.
Lathe, 48"x26" Bridgeford, g.hd.m.d.
Lathe, 32"x32" American, g. hd.m.d.
Lathe, turret, No. 6 Warner & S.
Lathe, turret, 15" Libby, m. d.
Lathe, turret, 24" Steinie, 6 1/2" hole.
Lathe, turret, 24" Libby, 7 1/2" hole.
Lathe, tur., 28" Gisholt, 9" hole.m.d.
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Miller, universal, No. 3 LeBlond.
Miller, universal, No. 4-A B. & S.
Miller, vert. No. 2 Cincinnati, h. p.
Miller, vert. No. 5 Brown & Sharpe.
Miller, Ingersoll, 48"x48"x20" adj. rail.
Nut tapper, 6-spindle Acme, 2 1/2".
Nut tapper, 10-spindle Acme, 1 1/2".
Pipe machine, 2" Landis.
Pipe machine, 6" Landis, m. d.
Pipe mchs., 8" Oster, 8" Williams.
Planer, 30"x30"x10" Woodward & P.
Planer, 48"x48"x16" Cincinnati, b. d.
Planer, o. s., 36"x36"x16" D. & H.
Planer, o.s., 48"x48"x12" D. & H.m.d.
Planer, rotary, 48" Niles, m. d.
Presses, arbor, Nos. 7, 17 Greenard.
Press, o.b.i. Ferracute Cl, 3" stroke.
Press, o. b. i. No. 21 Bliss, b. d.
Press, o.b.i. CG-6 Ferracute, 1200lbs.
Press, hydraulic, 1,000 ton United.
Press, hyd. 100-ton Watson-Stillman.
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Press, No. 75 Toledo, 1 1/2" stroke.
Press, No. 78 1/2 Bliss, t. r. 10" str.
Press, No. 92-B Toledo, d.c. 2 1/2" str.
Press, screw, No. 87 Niagara.
Press, wheel, 200-ton Schaffer.
Press, wheel, 300-ton South'k, 60"-13".
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Punch, hand, Shatz, bar and angle.
Punch & sh. No. 6 L. & A. 1/2" thru 1".
Punch, multiple, No. 5 H. & J. 10".
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Rolls, bending, 12"x 1/2" H. & J. d. e.
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Saw, band, metal No. 2 Klem, m. d.
Saw, cold, 48" Newton, m. d.
Saw, friction, Nos. 2 & 3 Ryerson.
Saw, hack, No. 5 Marvel, b. d.
Saw, univ., Peerless, 6"x6", m. d.
Saw, univ. Peerless, 13"x16", m. d.
Screw mch., No. 2 B. & S wire feed.
Shapers, 16", 20", 24" & 36" G. & E.
Shaper, 24" Smith & Mills, m. d.
Shaper, 48" Morton, draw cut.
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Shear, alligator, 14", 2", 3" & 4".
Shear, bevel, Lennox 1/2".
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Shear, Cleveland "W" 3" capacity.
Shear, rotary, 4" Ryerson.
Shear, 36"x16 ga. Pexto, foot.
Shear, squaring 8"x16 ga. Ohl.
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Straight'r, 48" United, 16 ga. 13 rolls.
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Straightener, 4" round Abramson.
Straight'r, No. 2-AK, & R. 20 roll, m. d.
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Upsetters, 1" to 6".
Welders, spot and butt.

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The Jones Machine Tool Co., Front & Pike Sts., Cincinnati, Ohio

Bor. mill, No. 32 G. & L. bor., 3" bar.
Car wheel borer, 36" Niles.
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Gear hobber, No. 12 Barber Colman.
Grinder, surf., No. 1 Diamond m. d.
Lathe, 16"x10" Hendey q. c. tie bar.
Lathe, 79" dbl. head, driving wheel.
Lathe, turret, Nos. 2A & 3A W. & S.

Miller, No. 3 Cinti. high pwr., s. p.
Miller, No. 2 Cinti high power s. p.
Miller, No. 2-M Cin., s. p. d. plain.
Planer, 30x30x8' Cincinnati 1 head.
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Radial, 3' American enclosed head.
Radial, 3' Bickford s. p. gear box.
Shear, 10'-14 gauge.

Send for our new list just issued, containing many special offerings.

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Grinder, No. 29-53 Besly m. d. disc.
Hammer, No. 5A High Speed rivet.
Hobber, Nos. 3 & 12 Barber-Colman
Lathe, 12"x4" Hendey, arr. for m. d.
Lathe, 20"x18" Sidney.
Lathe, 25"x12" Sidney.
Lathe, 33"x16" Le Blond, geared hd.
Miller, Nos. 2 & 3 Cincinnati plain.
Miller, No. 2 Ohio heavy universal;
No. 2 Van Norman duplex.
Miller, No. 3 Cincinnati, universal.

Pipe mche., 6" Landis, 6" E. C. & B.
Planer, 16" Niles plate.
Planer, 22"x22"x4' Whitcomb.
Planer, 36"x36"x14' Chandler.
Press brake, 10'-8" Ohl. 10 ga. cap.
Presses, No. 165-B Consolidated gd.
Presses, Nos. 19 and 21 1/2 Bliss.
Presses, No. 5 Toledo, o. b. i.
Radial, 2 1/2' & 6' Am. 3' & 5' Cin-Bick
Saws, 6"x6" Peerless; No. 12B Higley
Screw mchs., Nos. 5 & 6 Wood tilted
Screw mchs., No. 4 Warner & S.
Shapers, 20" and 32" Columbia.
Shear, 42" Stoll, 16 ga.
Turret lathe, No. 1-B Foster chuck.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

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St. Louis, Mo.

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Bolt threader, 1 1/2" Merriman.
Bolt threader, 2" Landis.
Boring mill, 36" Gisholt.
Drill, 3' American, triple purpose.
Drill, 14" Mason high speed.
Drill, 20" Champion.
Drill, 22" Barnes, back geared.
Drill, 24" Prentice, sliding head.
Drill, 25" Barnes back geared.
Drill, 28" Barnes sliding head.
Drill, 1-spindle Avey.
Drill, 2-spindle Leland-Gifford.
Drill, 3-spindle Avey.
Grinder, Wells Bros. universal.
Grinder, 12"x80" Landis universal.
Hammer, 60 lb. Bradley helve.
Hammer, 600 lb. steam.
Lathe, 14"x10" Lodge & Shipley, qcg.
Lathe, 18"x10" Bradford.
Lathe, 20"x10" Bradford.
Lathe, 24"x10" Le Blond.
Lathe, 24"x12" Schumacher-B., qcg.
Lathe, 30"x15" Lodge & Shipley, qcg.
Lathe, 36"x15" American, q. c. g.
Miller, No. 1 U. S. hand.

Miller, No. 2 LeBlond universal.
Miller, No. 2 Ohio single pulley dr.
Miller, No. 3 Rockford hand.
Miller, No. 5-B Brown & Sharpe.
Pipe machine, 8" Bignall & Keeler.
Pipe machine, 10" Bignall & Keeler.
Press, No. 57 Swaine straight back.
Press No. 1 1/2 Bliss toggle.
Press, No. 3 Toledo.
Press, Stiles & Parker drawing.
Press, No. 37 Niagara str. back.
Press, No. 24 Toledo cam drawing.
Press, No. 723 Toledo cam drawing.
Punch, No 14 W. W., 12" throat.
Punch, double end, two 20" throats,
capacity 1" in 1".
Planer, 42"x42"x26" Wheeler, 2 hds.
Screw machine, No. 3A Warner & S.
Shaper, 16" Smith & Mills.
Shaper, 32" Cincinnati.
Shaper, 24" American-Klopp.
Shear, 48" Excelsior, No. 16 gauge.
Shear, 36" Bertach, No. 16 ga. foot p.
Squaring shear, 8' power.
Tapper auto., Rickert & Schafer.

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FOR SALE BY

W. E. Brandt

Brake, 10"x3" D. & K., leaf type.
Brake, 10"x3" D. & K., leaf type.
Brake, 10"x3/16" D. & K., leaf type.
Brake, 6" 6"x1" D. & K., press type.
Bender, Cleveland 15" I beam.
Bulldozers, Nos. 2, 4, 24, 5, 26, 7,
29U Williams-White.
Crane, 68t, 42' P. & H., 3-60-440 v.
Dieing mach. 25 ton & 50 ton Wright.
Grinder, cylinder, "Micro" A-1.
Hammer, 4B Nazel.
Hoist, 3 ton, low head, A-1.
Lathe, 25"x16" Sidney, chuck, A-1.
Miller, No. 2 Beaman & S., 2-way.
Oven, japanning, 5'x8' Gehrich.
Pipe mch. No. 306B Oster, 1 1/2-6 m.d.
Press, No. 1 Toledo, inclinable, A 1.
Press, No. 76 Consolidated, str. 5".
Press, dbl. cr. Ferracute, bed 29x69.
Press, dbl. cr. Garrison, bed 63x36.
Press, dbl. cr. Ferracute, bed 72x46.

50 Penn Ave., Pittsburgh, Pa.

Press, double cr. 68F Niagara.
Press, dbl. cr. Toledo bed 32x84.
Press, s. a., Niagara bed 45x41.
Press, No. 57 Consolidated, bed 27x50.
Press, horning No. 16 Bliss.
Punch, No. 5 Massillon, 42" throat.
Punch, Cleveland Type W, 18" thr.
Roll, bending 6"x3" Lord & Bowler.
Saw, No. 4 Espen-Lucas 36" saw.
Shear, No. 112 Lennox throatless.
Shear, No. 2 Campbell nibbler.
Spring pointer, Coulter & McKenzie.
Str. mach. 49" United Eng. 17 roll.
Str. mach. No. 2 United Engr. 17 roll.
Str. mach. No. 3 Sutton-Abramson.
Thread roller, No. 40 & 60 W.-F.
Welder, 200 amp. arc. gas engine.
Welder, butt, 1/2" National, type 6A.
Welder, spot, 10 amp. 1/2" sheets.
Welder, Oxygraph cutting mch. No. 4.
Welder, butt, Toledo, 75 k w., 1-1/2" rd.

May we have your inquiries?

FOR SALE BY

McDonald Machinery Co.,

Air compressors, Curtis 10x10 m. d.
Bolt mchs., Landis & Acme 1 1/2".
Boring mill, Lucas No. 21 horizontal.
Boring mills, 4 Bullard 42" low price.
Brake, D. & K. 6' 10 gauge, power.
Cut-off mchs., 4 Davis 6" capacity.
Drill, Moline 4-spindle and 32-spdle.
Drill, Foote-Burt 4-sp. No. 2 gang.
Drill presses, Allen and Sipp 4-spdl.
Drills, Cincinnati-Bickford 3' & 3 1/2'
radials, gear box drive.
Drills, Sipp 1-spindle, h. s., b. h.,
H. & W. 2-spdl.; H. & W. 6-spdl.
Drills, 20", 24", 26" & 28" b. g., & tap.
Gear hobber, G. & E. 24".
Grinders, B. & S. No. 3 universal;
B. & S. No. 2 surface, complete.
Grinders, Landis No. 1 1/2 int., Landis
16"x42" universal.
Grinder, Pratt & Whitney vert. surf.
Hack saws, 6x6 Racine Peerless h. s.
Keyseater, Mitts & Merrill No. 2.
Lathes, Hendey 14"x6" q. c. g. yoke
head; Davis 22"x10" q. c. g.;
Sidney 16"x6" q. c. g., LeBlond
16"x8" Whitcomb-B. 22"x8" q. c. g.
Monarch 16"x8"; C. & J. 15"x8";
Superior 18"x8"; L. & S. & Cinti.
16"x6", q. c. g.; American 22"x10"
q. c. g. geared hd.; American 16"x6"
q. c. g.; Lehmann 18"x7" q. c. g.;
40 assorted sizes, quick and loose
change gear, G-K 24"x16" l. c. g.
Milling machines, Van Norman
No. 2 duplex; Ohio No. 20 plain,
LeBlond No. 3-H; Brown & S.
No. 3; B. & S. No. 3 B pl., s. p. d.;

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American No. 1 1/2; Kemp Smith No. 1
Cleveland No. 2; Becker No. 25 all
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No. 1 1/2; Ohio No. 29 all universal;
B. & S. No. 5 vertical; Cincinnati
18" mfg; Becker No. 2-H vertical.
Milling and drilling mchs., Knight
No. 1 1/2 with power feed, vertical.
Pipe machine, Curtis 3", motor dr.;
Merrill 4"; Curtis 2 1/2" to 12" m. d.
Planers, Gray 25"x25"x6", 1 head;
Cincinnati 36"x36"x18" 2 heads;
Pond, 36"x36"x12" table, 18" bed,
2 heads; Flather Gray 24"x24"x6".
Punch presses, Bliss No. 1 1/2 & Swaine
No. 63 straight side geared, Federal
Nos. 1, 2, 3 and 4; Bliss No. 19;
Swaine No. 37; Sidney No. 2, o. b. l.
Screw machine, Cleveland 24" auto.;
P. & W. No. 2 1/2 hand; Foster No. 3
hand; Woods No. 2 tilted turret.
Milholland No. 4 b. g. hand; Foster
No. 7 hand b. g.; W. & S. No. 1.
Slotters, P. & W. 6"; N. B. P. 10" vert.
Shapers, S. M. 16"; 24": Queen City
24" back geared; G. & E. 16", b. g.;
Niles traveling head; Milwaukee
16" b. g.; Walcott 20" b. g.; S. & M.
& Ohio 26" b. g.; Ohio 16", Cin-
cinnati 20", b. g.; Rhodes 7"; Queen
City 16" b. g.; Potter & J. 16".
Shears, 60" thr. rotary slitting, (2).
Spot welders, 8, 7 1/2, 10, and 20 k. w.
Square shears, Niagara 62" power.
m. d. 18-ga.; Ohio 8" power 16 gauge.
Thread miller, Lees-Bradner No. 3 E.
Turret lathes, Warner & S. No. 2A.

USED AND REBUILT MACHINERY

FOR SALE BY

Norton-Broadway Mchy. Co., Sixth & Baymiller Sts., Cincinnati, O.

BORING MILLS.

24" and 36" Bullard New Era. 24" Cleveland horiz., rot. tbl. \$1250.
36" and 51" Niles, 2 hds. \$425 & \$850.

DRILLS AND RADIALS

6' American, gear box, sgl. pul. \$1000. No. 5 Fox mult spdl. 32"x45"...\$1250.
4' Morris, single pulley..... 775. No. 310 Baker heavy duty

LATHES.

60"x16" New Haven.....\$1050. 19"x12" Sidney q. c.....\$ 685.
36"x22" New Haven, blocks to 18"x8" Mueller, q. c..... 390.
44"..... 675. 17"x8" LeBlond, q. c..... 500.
30"x14" Prentice q. c. 13"x54" Willard, geared head.
26"x48"x10" McCabe dbl. sp... 725. 14"x6" Bradford, q. c.

MILLING MACHINES.

No. 2 Cincinnati univ., cone...\$ 775. No. 4 Cinti. univ. knuckle-joint
No. 2 Cinti. vert., sgl. pulley.. 1050. vertical attachment.....\$ 975.
No. 4 Cinti. vert., sgl. pulley.. 975. No. 4 Becker-Brainard, cone. 675.
No. 3 Cincinnati pl. sgl. pulley 950. No. 4 Brown & S. plain, late.

PLANERS AND SHAPERS.

26"x26"x10' Gray, 1 head.....\$ 775. 32"x20" American, 2 heads.....\$ 350.
36"x12" D. & H. openside, 3 hds. 1250. 34" Gould & Eberhardt, b. g. 975.
48"x10' Belmer, 4 heads..... 950. 24" Potter & Johnston, b. g.... 700.

MISCELLANEOUS.

Automatic, No. 2-G B. & S...\$ 465. Shear, 36" Niagara power,
Grinder, B. & S., planer type. 325. No. 10 ga.
Pipe mchs, Curtis & Curtis 12" 575. Slotter, 26" Dill, motor drive...\$1350.
Presses, No. 152 Toledo dble. Turret lathes, 6" Gisholt, mtr.
crank, 13,000 lbs..... 800. drive..... 775.

FOR SALE BY

Percy M. Brotherhood & Son, 25 Church St., New York, N. Y.

POWER PRESS BRAKES

Ohl 10'-10 gauge. Cincinnati 10'-3/16"
Ohl 12'-3/4". Cincinnati 12'-5/16"

POWER LEAF TYPE BRAKES

Chicago 10'-3/16"; 1/2": 1/2" Chicago 60"-No. 10.
Chicago 96"-No. 10-3/16"

DIE SINKERS

Pratt & Whitney Nos. 2 and 3 Jackson No. 10.

LATHES

63"x30' geared head. 18"x30"x20" Rahn-Larmon gap.
48"x30' geared head. 42"x72"x16" F. & S. gap.
48"x40' geared head.

PIPE MACHINES

12" Curtis, motor drive. 6", 8", 10" Signal & Keeler.

PUNCHES AND SHEARS

Ryerson No. 4 iron workers. Buffalo No. 27 universal.

SHEARS

Hilles & Jones 48"x11" plate. Hilles & Jones No. 5 single punch
Hilles & Jones 48"x1" plate. 54".
Hilles & Jones 72"x1" plate. Unishear 36", capacity 1/4"

POWER SQUARING SHEARS

Chicago 8', 10' 12,-No. 10 to 1/2" Niagara 96"x14".
Chicago 15' for No. 16. Pexto 96"x10"

PELS TRIPLE PURPOSE MACHINE

Sizes No. 13; No. 16; No. 23.

MISCELLANEOUS

Bending rolls, 4' to 30'. Nibbler, Gray 30", capacity 3/16".
Drills, all kinds. Planers, all sizes; 24" to 120".
Gang splitter, L. & N. 36". Planers, plate, 16' to 24".
Millers; plain and universal. Radial drills, 3' to 72".
Millers, planer type, 24" to 60". Shapers, 16" to 36".

Send for our list.

USED AND REBUILT MACHINERY

FOR SALE BY

Wigglesworth Machinery Company

199 Bent Street,	Cambridge, Mass.
Blocks, Johansson.....	\$125.
Drill, 2 spindle Leland-Gifford.....	150.
Drill, 4 spindle Leland-Gifford.....	450.
Drill, 3" American radial.....	600.
Lathe, No. 4 Stark, collets.....	135.
Lathe, Ames, collets.....	145.
Lathe, 7"x24" Dalton.....	95.
Lathe 9"x3" Monarch, q. c. g.....	160.
Lathe, 11"x5' Vernon, q. c. g.....	\$150.
Lathe, 14"x6' Hendey, taper.....	550.
Lathe, 19"-30"x8' LeBlond gap.....	385.
Micrometer, outside, B. & S. set.....	35.
Micrometer, inside, Lufkin, set.....	35.
Miller, No. 1 B. & S. plain.....	350.
Press, No. 1 Consolidated, incl.....	110.
Shaper, 15" Potter & Johnston.....	350.

A Hundred Other Bargains.

FOR SALE BY

Scott-Bansbach Machinery Co., 4607 West 20th St., Chicago, Ill.

Automatic screw machines, No. 00 B. & S., ser. nos. 2232 & 5152.....	\$325-\$400.
Auto. screw mchs. No. 0 B. & S. nos., 3340, 3495, 3831, slotting att. each.....	450.
Automatic screw mche., No. 0 B. & S. turret former, serial no 3123.....	200.
Automatic screw machine, 14" Gridley 4 spindle model F.....	500.
Automatic screw machine, 24-34" Cleveland model A, square pan.....	500.
Automatic screw machine, 24-34" Cleveland model A, square pan.....	500.
Bolt cutter, 1" Landis complete.....	200.
Compressor, 4 1/2"x4 1/2" Gardner vertical, w. c. with tank 30"x72".....	125.
Drill, 24" Sibley sliding head, b. g. and p. f.....	200.
Drill, 2-spindle H. W. h. s., b. b. heavy duty, class B.....	200.
Gear hobber, S. & S. No. 0, capacity 12"x10"x6 1/2" d. p.....	300.
Gear cutter, B. & S. No. 3 26" for spur gears.....	300.
Grinder, No. 2 Brown & Sharpe automatic surface, magnetic chucks.....	400.
Grinder, Capitol internal, capacity 3/16" to 2"x2".....	150.
Grinder, No. 7 Gardner 30", b. b. with press, belted motor drive.....	325.
Lathe, 16"x8" LeBlond quick change.....	250.
Lathe, 18"x6" Hendey quick change, taper attachment serial no 19150.....	500.
Lathe, 18"x7" South Bend q. c. motor driven, 2 chucks.....	500.
Lathe, 18"x8" Chard semi-quick change gear.....	325.
Lathe, 18"x8" Davis heavy duty, q. c. g., d. b. g., 14" 4-jaw chuck.....	500.
Lathe, 20"x8" Monarch, d. b. g., q. c. chucks.....	400.
Lathe, 30"x13" H. S. & G. heavy duty, q. c., d. b. g. 16,000 lbs.....	1,250.
Miller, No. 3 Cincinnati, cone drive, old style.....	350.
Miller, No. 3 Kempsmith, cone drive, with c/s and vise.....	600.
Miller, No. 1 Garvin universal, fully equipped.....	450.
Miller, Cleveland universal, No. 1 g. h., fully equipped.....	650.
Miller, No. 2 MU. Garvin universal, fully equipped.....	550.
Miller, 12" Cincinnati, mfg. type, s. p. d., vise and pump.....	125.
Miller, Briggs, G. & E. manufacturing, 16".....	125.
Miller, No. 5 Becker vertical, no rotary.....	500.
Miller, No. 7 Becker, Lincoln type.....	125.
Miller, No. 21 Garvin power feed, oil pump.....	150.
Miller, Hendey, Lincoln type.....	100.
Miller, No. 12 Brown & Sharpe production type.....	100.
Miller, Ingersoll slab, 42"x36"x9".....	1,000.
Planer, 24x24x8 Fitchburg, 1 head.....	200.
Planer, 36"x36"x12" Cincinnati with 2 heads.....	1,200.
Press, No. 30A, Perkins o. b. i. 2" stroke, 1500 lbs.....	150.
Press, No. 4, Niagara o. b. i. 2" stroke, 1700 lbs.....	200.
Press brake, 10' Ohl power, No. 10 gauge.....	1,500.
Saw, No. 5 Marvel high speed 6x6.....	125.
Screw machine, No. 1. B. & O. plain head, 13/16" capacity.....	225.
Separator, Curtis oil, 1 bushel.....	275.
Separator, oil, American 1 1/2 bushel.....	300.
Shaper, 20" Cincinnati, crank, back geared, vise and c/s.....	550.
Turret lathe, 24"x10" Millholland, for chuck and bar work.....	650.
Turret lathe, 34"x36" Acme with chucking equipment.....	500.
Turret lathe, 24" Steinle, 4" hole, side carriage.....	300.

USED AND REBUILT MACHINERY

FOR SALE BY

Wachs-Gregg & Co.,

Boring mach., Giddings-Lewis No. 32.
Boring mill, Bullard 60".
Drill, Cincinnati Bickford 3' radial,
Drill, W. E. gang 6' radial.
Drill, Foote-Burt 24" heavy duty.
Drill, Harrington, 61 B, multiple.
Drill, Woodward & Rogers 6-spd.
Drill, Pratt & Whitney No. 12 mult.
Fox lathe, Warner & Swasey No. 3.
Grinders, Nos. 4 and 6 Badger disc.
Hammer, Mayer 100 lb. upright.

117 N. Jefferson St., Chicago

Lathe, Bradford 32"x18".
Lathe, Whitcomb-Blaisdell 18"x8".
Milling machine, Cinn. No. 2 univ.
Milling mche., Rockford No. 6 plain
Planer, Belmer, 48"x48"x12', 3 hds.
Press, V. & O., No. 2.
Press, Niagara No. 5 1/2 o. b. i.
Screw machine, Foster No. 4.
Shaper, Cincinnati 20".
Turret lathe, Pratt & Whitney 8"x4 1/2"
Turret lathe, Warner & S. No. 2 A.

FOR SALE BY

Reliance Machinery Sales Company

1405 Brighton Road, N. S.

Pittsburgh, Pa.

Bolt cutter, 2" Acme, single head.
Boring mill, 36" Niles vert., 2 hds.
Centering mach., Cadillac dbl. end.
Drill, 36" Snyder, slid. hd. (cheap).
Drill, No. 25 Foote-Burt, hvy. cap 3"
Drill, radial, 3' Cin.-Bick. a. c., m. d.
Grinder, 12"x24" Modern pl., self-c.
Hammer, 25 lb. upright (cheap).
Lathe, 16"x8" Hendey, tie bar, taper.
Lathe, 17"-37"x8" gap, sliding bed.
Lathe, 24"x16" New Haven, (cheap).
Miller, No. 2 Cincinnati universal.
Miller, No. 26 Kempsmith univ.
Miller, No. 5 C Becker vertical.
Millers, No. 2 Ohio & Milw. pl. s.p.d.

Miller, No. 24 Rockford pl., vert. att.
Pipe machines, 2" & 4" Oster, m. d.
Pipe mach., 8" EC & B, belt (cheap)
Press, trimming, 6" shaft, 6" str. m. d.
Press, No. 21 Bliss o. b. i., 3" stroke.
Press, No. 4 Toledo o. b. i., grd. 3 1/2" str.
Planer, 36"x36"x8" Cinti., 2 heads.
Riveters, No. 2-A, 3-A Hi-Sp., m. d.
Shaper, 20" Cincinnati, b. g. crank.
Shear, circle, No. 103 Bliss, cap. 14 ga.
Shear, Unishear, cap. 14 ga., m. d.
Screw mach., No. 4 W. & S., bar fd.
Tapper, 6 spd. Acme, cap. 1" nut.
Tapper, Garvin vert. 2 spd., cap. 3/4".
Welder, arc, 200 amp. G. E.

FOR SALE BY

A. D. White Machinery Co.,

108 N. Jefferson St., Chicago, Ill.

Automatic, Gridley 4-spindle, 14" and 2" motor drive.
Automatic, Cleveland 8"-4" model A, rebuilt, (2).
Bolt cutters, 3 1/2" and 4" Acme, single head, rebuilt.
Drills, 3-spindle Allen and Henry & Wright ball bearing.
Drills, 6-spindle Allen ball bearing, 220 volt 60 cycle motor.
Drills, 26" Barnes back geared, sliding head.
Grinder, 6"x32" Norton plain cylindrical, very good.
Grinder, 14"x72" Norton plain cylindrical.
Grinder, Oesterlein tool & cutter, 440 volt, 3 phase, 60 cycle motor.
Hammer, 60 lb. Bradley cushion helve.
Miller, No. 10 B Kearney & Trecker vertical, with rotary table.
Miller, No. 6 Becker vertical, with rotary table.
Miller, No. 24 Cincinnati automatic, 220 volt, 3 phase, 60 cycle motor.
Miller, No. 4 Cincinnati 36" hydromatic, motor drive, used 5 days.
Planer, Cincinnati 24"x6" Tu-Speed.
Press brake, 6" Cincinnati, 10 ga. with motors, excellent.
Press brake, 8" Cincinnati, 12 ga. with motors, excellent.
Presses, 7 No. 5 Loshbough-Jordan inclinable, geared.
Presses, 2 No. 90 Toledo double crank, 4" stroke.
Presses, No. 754 Bliss straight side, geared, 5" stroke.
Presses, No. 4264 Hamilton double crank, 8" stroke, with a. c. motor.
Punch and shear, Pels combination No. 10, with built-in coper.
Screw machine, hand, No. 3 & 4 Bardons & Oliver, several of each.
Screw machine, hand, No. 2 Foster, one plain head, other geared, rebuilt.
Also complete outfit for deep drawn sheet metal, with toggle presses, from
10000 lbs. to 24000 lb. in weight, and other machines.

USED AND REBUILT MACHINERY

FOR SALE BY

Strafer Machinery Company,

14th and Provost St., Jersey City, N. J.

BENDING ROLLS.	
H. & J. 10'6"x4" drop end, m. d.	B. S. 17'6"x4" drop end, m. d.
BORING MILLS	
72" Sellers rapid trav. modern, m. d.	51" N.-B.-P. speed box, s. p. d.
GEAR CUTTERS	
No. 6 Cincinnati 72"x20" m. d.	No. 5A. Lees-Bradner, with motor.
PRESSES.	
Ferracute 200 ton 82" double crank.	Ferracute S. G. 77, 70" blanking.
400 ton W. S. hydraulic 73"x20'.	No. 4½ Bliss double crank, 32".
MISCELLANEOUS.	
Boring bars, portable, 4"x8'.	Hammer, 400 lb. Chambersburg,
Compressor, I.-R. 8"x6" horiz. m. d.	steam-air.
Disc grinder, 30" ball bearing.	Pipe machine, Saunders 6", dies.
	Squaring shear, Niagara 8"x10 ga.

FOR SALE BY

Brownell Machinery Co., 150 Pine St., Providence, R. I.

BORING MILLS.	
36" Bullard New Era, vertical turret.	No. 2 Binsse horizontal 2½".
DRILLS.	
3½" American plain radial, s. p. d.	3" American plain radial s. p. d.
3" Cincinnati-Bickford plain radial,	20" Excelsior.
s. p. d.	14" Excelsior.
GEAR CUTTERS AND GRINDERS.	
No. 13 Brown & Sharpe gear cutter,	No. 2 Brown & Sharpe surface.
18x4, spur & bevel.	No. 13 B. & S. universal & tool.
No. 3 Brown & Sharpe gear cutter,	20" Blount wet tool.
26x8, spur.	Grand Rapids twist drill C-2-T.
LATHES.	
11"x5" South Bend q. c. g.	24"x14" Whitcomb-Blaisdell, q. c. g.
14"x6" Hendey, draw-in attachment.	24"x27" Fitchburg.
18"x8" Monarch q. c. g.	30"x20" Fitchburg.
18"x12" Rahn-Larmon.	18"x10" Fay & Scott pattern makers.
20"x12" Monarch, taper.	
MILLING MACHINES.	
No. 3 Cincinnati vertical, m. d.	No. 1 Garvin universal.
Model "AB" Becker vertical.	No. 1 U. S. hand.
No. 13-B B. & S. manufacturing.	Newton adjust. rail type 20"x24"x8'
No. 0 Brown & Sharpe plain.	Ingersoll fixed rail type 24"x8'.
SCREW MACHINES & TURRET LATHES.	
No. 4 W. & S. grd. friction hd., 14"	No. 00, No. 0-G, No. 2 Brown &
3"x36" Jones & Lamson flat turret.	Sharpe automatics.
SHAPERS AND PLANERS.	
20" Cincinnati shaper, motor driven.	15" Springfield.
16" Sellow tool room shaper.	20"x20"x4' Fitchburg planer.
16" Rockford V-ram, s. p. d.	24"x24"x6' Whitcomb planer.
ROLLING MILLS	
5x8 Ruesch.	16x22 Waterbury-Farrel foundry.
10x16 Waterbury-Farrel foundry.	Standard 3-stand Belgian Train 8x10.
MISCELLANEOUS.	
Centering mche., Whiton bench.	Power press, No. 6 Waterbury over-
Hammer, automatic drop 300 lbs.	hanging.
Standard Machinery.	Press, 15-tons Standard knuckle joint
Hammer, jewelers, 900 lbs. M. & P.	embossing. 4" stroke.
Hammering mch., No. 2 Langelier.	Screw press, No. 3 Standard heavy
Hammer, 80 lbs. Bradley cushioned	hand.
helve forging.	Shaft straightener, Rockford 4" to 2½"
Power pr., No. 2 Bliss Consolidated.	Slotter, Bement Miles, 12".
WOOD WORKING.	
Band saw, 36" Crescent.	Jointer, 12" Oliver ball bearing.
Boring mche., White vert. & hor.	Planer, S. A. Woods 24"x5 sgl. cyl.

USED AND REBUILT MACHINERY

FOR SALE BY

Brown Machinery Co.

Drills: 24", 26" and 32" Barnes and Rockford; 4-spindle Moline hole hog No. 66D.

Gear hobbess, G. & E. 12" and 24".

Grinders: No. 6 Bealy dbl. spindle;

No. 220 Badger auto. disk; 12x30"

Modern, plain s. c. c. s.; No. 12

Brown & Sharpe, universal, tool.

Hammer: 40 lb. Bradley, helve; 50 lb.

Mayer upright.

Lathes, 30" x 12' Blaisdell; 26" x 12'

Write for prices; send us your inquiries for shop equipment and sheet metal

working machinery. We have the stock.

2333 N. 9th St., St. Louis, Mo.

Putnam, hvy. duty; 20"x12' Lodge

& Shipley, q. c. g.; 18"x8' Prentice

geared head; 16"x8' Lodge &

Shipley q. c. g.; 16"x6' Monarch.

Millers: No. 2 Hendey-Norton, univ.;

No. 3 Fox; No. 4 Hendey Lincoln.

Press, No. 7 Zeh & Hahneman.

Punch, Cleveland C 4 in 4"; Rock

River Style L 1" in 1".

Threaders: 4" Geometric; National

14" double head.

FOR SALE BY

Bennett Machinery Co.

Automatics, Nos. 53 & 55 Nat. Acme.

Automatic, No. 24 New Britain.

Bolt cutter, 34" Acme, 2 heads.

Bor. mills, 30" Rogers, 48" Colburn.

Brake, 8' x 16" Robinson m. d.

Gear cutter, 60" Brown & Sharpe.

Gear hobbess, 18H & 24H G. & E.

Grinder, No. 2 Landis, universal.

Hammer, 300 lbs. Beaudry.

Keyseater, No. 2 Catlin; No. 0 M&M

Lathe, 61"x48' Putnam geared hd.

Lathe, 45"x45' Pond, geared head.

Lathe, 42"x24' Niles, cone.

Lathe, 27/30"x16' Reed-Prentice.

Lathe, 26"x12' Greaves-Klusman.

Lathe, 20"x10' Reed-Prentice.

Lathe, 18/20"x8' L. & S. select. hd.

30 Church St., New York City

Lathe, 16/18"x8' L. & S. cone head.

Lathe, 18"x6' Rahn-Larmon, t. a.

Lathe, 16"x8' & 14"x6' Hendeys.

Miller, No. 33 Kempamith prod.

Miller, No. 4 Hendey, grd. head.

Miller, No. 3B Milwaukee, vert. att.

Miller, No. 3 Cincinnati, cone.

Miller, No. 14 Garvin, vertical.

Miller, No. 2 Knight vertical.

Pipe mchs., 8" Saunders, 8" Jarecki.

Planer, 24"x24"x6' Woodward m. d.

Radial drill, 34" and 3' Muellers.

Shapers, 25", 30" and 16" S. & M.

Turret lathes, No. 4 Warner & S.

universal both bar and chucking,

equal to new.

Turret lathes, Nos. 1B, 2B Fosters.

FOR SALE BY

Randle Machinery Co.

Air compressors, all sizes and types.

Arbor press, Nos. 2 and 4 Greenerd.

Beading machine, Quickwork univ.

Beading mche., No. 624, Pexto, m. d.

Bending rolls, 8' x 14 ga.

Bending rolls, all sizes & types.

Bolt cutter, 14" Landis.

Boring mills, 24" to 14'.

Brake, No. 615 & No. 814 D. & K.

hand power.

Brake, 10' x 10" ga D. & K., leaf, m. d.

Brake, 8' & 10' x 10 ga Ohl.

Brake, 10' x 16" D. & K. press, m. d.

Drills, all sizes and types.

Grinder, No. 14-20" Gardner.

Grinder, No. 24-32" Gardner.

Keyseaters, No. 8 Catlin & Davis.

Lathe, 11"x3' Monarch Jr. cone dr.

Lathe, 12"x4' Sebastian, m. d.

Lathe, 16"x8' Sebastian, m. d.

Lathe, 24"x12' Cisco geared head.

Lathe, 26"x12' Wickes semi q. c.

Lathe, 42"x45' Putnam.

Also many other bargains.

1733 Powers St., Cincinnati, Ohio

Lathe, 33"x28' Johnson.

Milling mche. No. 0 Steptoe b. g. pl.

Milling machine, No. 2 LeBlond

universal motor drive.

Pipe bender, No. 5 B Wallace.

Pipe bender, Smith & Pedrick.

Pipe machine, 3" & 6" Landis.

Press, No. 5 Bliss d. c.

Press, No. C-2 Ferracute.

Press, No. 91B Toledo d. c.

Press, No. 3 Amer. openback, m. d.

Saw, 6x6 Excelsior (new) #67.

Shapers all sizes and type.

Shear, No. 848, No. 662 Niagara.

Shear, 10' x 12 ga. Bertsch.

Shear, 10' x 14 ga. Stoll, m. d.

Shear, 10' x 16" Long & A., m. d.

Shear, No. 6 L. & A. universal.

Shear, Southwark rotary, 8 ga.

Shear, No. 38 Marshalltown m. d.

Welders, 100 to 300 amps., arc.

Wheel press, 100 to 300 tons.

Wheel press, 150 ton Caldwell, #400.

Send us your inquiries.

USED AND REBUILT MACHINERY

FOR SALE BY

The O'Brien Machinery Co.,

113 N. Third St., Philadelphia, Pa.

Automatic, No. 00 B & S high speed.
Bending roll, 11' drop end, $\frac{3}{4}$ " cap.
Bending roll, 25' H & J, $\frac{3}{4}$ " cap.
Column facer, 14" Espen-Lucas.
Crane, electric travel, 15 ton a. c.
Drill, 4' Cincinnati-Bickford, radial.
Hammer, 2000 lbs Chambersburg.
Hammer, 1100 lb. N.-B.-P. sgl. fr.

Lathe, 36"—60"x32' McCabe, belt.
Miller, No. 3B Brown & S. plain.
Planer, 30"x30"x8' Detrick & H.
Punch, 36" beam cap, 2—1"x1".
Punch and shear, 24" Southwark,
arch. jaw, cap. $\frac{1}{4}$ "x $\frac{1}{4}$ ".
Shear, 8' Covington squaring, gap
pattern, $\frac{3}{4}$ " capacity.

FOR SALE BY

Miles Machinery Co.,

Saginaw, W. S., Mich.

GEAR CUTTERS

18" & 24" Gould & Eberhardt.
Nos. 3 & 12 Barber.
14", No. 5A Lees-Bradner.

16"x12" Cincinnati.
36", No. 6 Fellows.
64"x20" Gould & Eberhardt.

KEYSEATERS

$\frac{1}{4}$ ", No. 0 Mitts & Merrill.
1", No. 0 Baker.

1 $\frac{1}{2}$ ", No. 2 Mitts & Merrill.
2 $\frac{1}{2}$ ", No. 4 Mitts & Merrill.

LATHES

12"x8' Hendey.
14"x8' LeBlond.
16"x8' Monarch.
16"x8' Springfield.

18"x8' Whitcomb-Blaisdell.
20"x8' Lodge & Shipley.
19"x10' Sidney.
26"x14' Putnam.

SHAPERS

16", 20" & 24" Gould & Eberhardt.
15" & 24" Potter & Johnston.
14" & 20" Steptoe.
16" & 20" Milwaukee.

16" Kelly.
18" Sterling.
20" American.
28" Columbia.

FOR SALE BY

Herman L. Winterer,

947-953 N. Front St., Philadelphia, Pa.

Boring mill, Bement-Miles horiz. 4 $\frac{1}{2}$ " bar with revolving table.....	\$1700.
Boring mill, 60" Niles car wheel.....	200.
Boring lathes, (2), Johnson journal bearing boring type.....each.	100.
Drill press, 48" Almond, sensitive radial, post type.....	100.
Drill press, 24" Foote-Burt, heavy duty.....	240.
Drill press, 24" Snyder, sliding head.....	125.
Drill press, 28" Aurora, b. g. sliding head.....	225.
Lathe, 37 $\frac{1}{2}$ "x14" Johnson, d. b. g., q. c. g., taper attachment.....	1000.
Lathe, 32"x12" Pittsburgh, heavy duty, d. b. g., q. c. g.....	850.
Lathe, 27"x12" Bullard, d. b. g., q. c. g.....	400.
Lathe, 26"x11" Wickes, d. b. g., q. c. g.....	400.
Lathe, 28"x16" Niles, d. b. g., q. c. g.....	350.
Lathe, 18"x10" Reed, p. c. g.....	160.
Lathe, 16"x8" Hendey, p. c. g.....	175.
Milling machine, No. 3 Becker, universal with vertical attachment.....	550.
Milling machine, No. 15 Garvin.....	225.
Moulding machines, (7) Tabor 14"x21"—13" cylinder.....each	100.
Planer, 48"x48"x12" Gray, 2 heads.....	1000.
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- 6-Edlund 1, 2, 3, 4 Spindles.
- 3-Minster No. 2-D.
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Nos. 3, 2H & 1½ B. & S. Plain, cone p.

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24" G. & E. Hi-Duty B. G. Cr. s. p. dr.
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20" S. & M. H. D., B. G. Crank s. p. d., also has Tilting Table Top.
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33"x33"x8" Ohio, 2 heads on rail.
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4" Drees Hi-Duty Univ. Radial, g. b. d.
36", 32", 24" & 22" Aurora Upright.
34", 26", 22" Barnes Upright, late type.
28", 24" & 21" Cincinnati-Bickford Up.

No. 220 Baker Bros. 2-sp. Hvy. Duty.
Nos. D4, D3 & D2 Colburn Heavy Duty
No. 2 Avey 4 and 6 spindle b. b., p. f.
1, 2, 3 & 4-sp. No. 2 Colburn Mfg., H.D.
No. 1 S. S. Garvin Horizontal Duplex.
No. 14 Natco Multi. Spindle, 12 spds.
No. 0 Fox Multi. Spindle, 6 spindles.

ENGINE AND TURRET LATHES

36"x20" Bridgeford G. H., Q. C.
27"x16" Amer. H. D., G. H., Q. C.
24"x12" Amer. H. D., G. H., Q. C., t. a.
20"x8" Hendey G. H., Q. C., taper att.
18"x8" Greaves & K. G. H., Q. C.
16"x8" L. & S. Sel. G. H., Q. C. t. a.

14"x8" Reed-Prentice G. H., Q. C.
12"x5" Hendey Yoke Head, Q. C.
26" Libby Type "C" Turret.
Nos. 2A & 3A W. & S. Univ. Turret.
No. 4G Millholland Grd. Hd. Turret.
Nos. 2, 4, 6 Warner & Swasey Turret.

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18" Gleason Bevel Gear Generator.
Nos. 2, 3 & 12 Barber-C. Gear Hob.
No. 18-H G. & E., H. D. Gear Hobber.
Nos. 6, 61 & 615 Fellows Gear Shapers.
Nos. 3-26", 4-48" B. & S. Auto. S. G.
No. 13 B. & S. Auto. Spur & Bevel Gear
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10"x24", 10"x36", 10"x56" Land. PLS-C
No. 60 Heald Cylinder.

No. 70 Heald Int., late type clutch in hd.
No. 22-12" Heald R. Surf., 12" dia. m. c.
No. 2 B. & S. Auto. Surf. Mag. Chuck.
14" Pratt & W. Vert. Surf., rot. chuck.
Nos. 2 & 3 W. & M. Auto. Surface.
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No. 8, 40" Gardner Disc.
Nos. 1½ & 2 Cinti. Univ. Tool & Cutter.
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MISCELLANEOUS

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Bolt Thread. Mch., 1", 1½" Landis.
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Boring mill, 24", 36" Bullard, Rap.
Prod., Vert. turret & side heads.
Boring Mills, 36"-44" Niles-Bemet-Pond
Side Head Vertical A. C. Mtr. Dr
Bor. Mill, 72" Niles Vert., 2 heads.
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Die Sinkers, Nos. 2 & 3 P. & W.

Millers, 4" Pratt & Whitney Spline.
Miller, 6"x14", 6"x80" P. & W. Thr.
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Press, No. 206B Toledo d. c., grd. Pwr.
Press, No. 83C Mich. D. C. Grd. Pwr.
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- 1-16"x8" Hendey, oil pan.
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- 1-14"x10" Pratt & Whitney.
- 2-14"x8, 7" Reed-Pren., G. H.
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- 5-No. 1-A Fox.
- 1-No. 2-A Hendey.
- 11-Nos. 6, 5, 4-B, 1 Becker Vert.
- 4-Nos. 4, 3 Cincinnati Vertical.
- 2-Nos. 5, 3 B. & S. Vertical.
- 1-No. 3 Sundstrand Rigidmil.
- 5-48", 24", 18" Cincinnati Auto.
- 7-No. 33 Kempsmith Mfg.
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4-spindle Demco bench (new).

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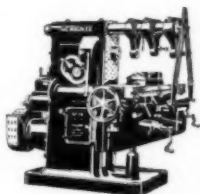
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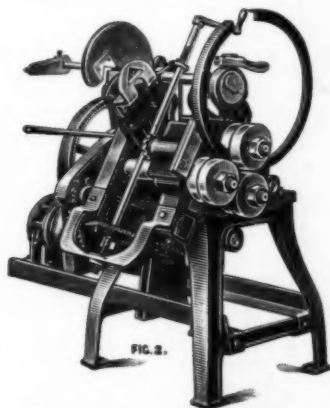
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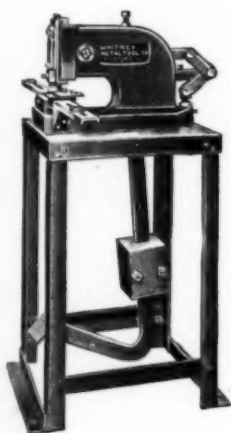
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